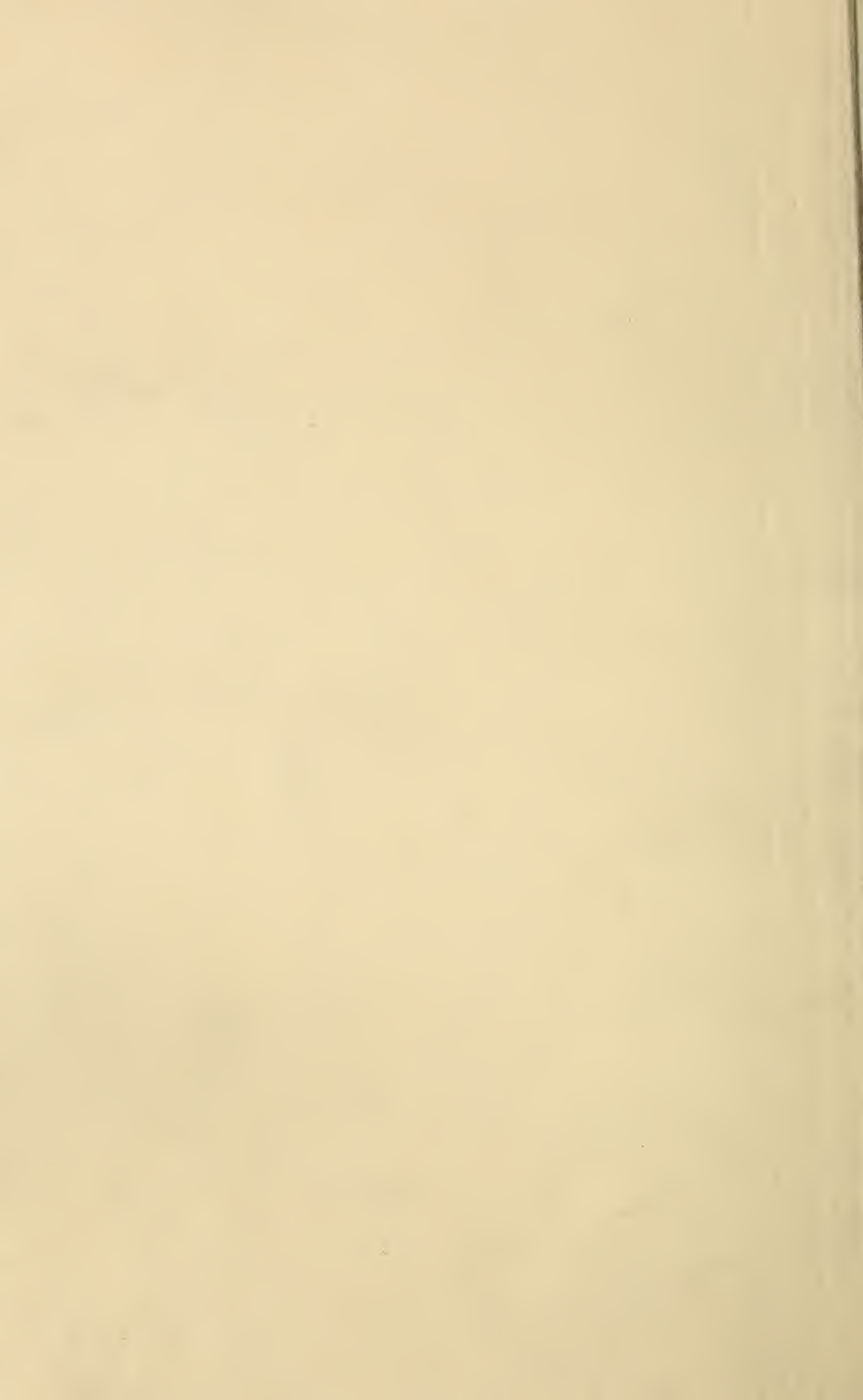


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(Entered as second class mail matter at the Postoffice at Medina, Ohio.)

THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

Editorial Staff

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Editor

A. I. ROOT
Editor Home Dept.

H. H. ROOT
Managing Editor

J. T. CALVERT
Business Manager

Bee Supply Department

Orders shipped day received.
Our Warerooms are loaded with
Lewis Beeware.
Every thing at factory prices.
Send for Catalog.

Wax Rendering Department

We do perfect wax rendering.
It will pay every beekeeper to
gather up all his old comb and
cappings and ship to us. We
charge 5c a pound for the wax
we render, and pay the highest
cash or trade prices.

The Fred W. Muth Co.

The firm the Busy Bees work for

204 Walnut Street . . . Cincinnati, Ohio

HONEY MARKETS

BASIS OF PRICE QUOTATIONS.

The prices listed below, unless otherwise stated, are those at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

CHICAGO.—Honey has sold quite well during the past thirty days, and the demand for extracted has exceeded the supply. Comb honey has also cleaned up to quite a degree, altho there has been no advance in price. Extracted would probably bring more than our late quotations, which have been 10 cts. per lb. for the white, and 8 to 9 for the ambers. Comb honey has been ranging at 14 to 15 for the white, with no amber grades offered. Reports are coming of some loss in bees owing to the severe cold weather; but generally they are of a favorable nature, with promising prospects of a flow of nectar throught the country. Beeswax is bringing 33 to 35 if free from sediment.

Chicago, Ill., March 18. R. A. Burnett & Co.

NEW YORK.—There is very little demand for comb honey. There is some call for No. 1 and fancy white stock, whereas off grades are neglected. Stocks, however, are not very heavy, and should be cleaned up very shortly. We quote nominal No. 1 and fancy white from 14 to 15 cts. per pound; lower grades at from 10 to 13, according to quality. As to extracted honey, domestic product, such as California and white clover, seem to be well cleaned up; but mixed grades, including buckwheat, are still being offered and still available. Prices vary according to quality and quantity, all the way from 6½ to 10 cts. West India honey is in good demand, and receipts are principally from Cuba, which is selling at from 85 to 95 cts. per gallon, according to quality. Beeswax is steady and in good demand, selling at from 38 to 40, according to quality.

New York, March 19. Hildreth & Segelken.

PORTLAND.—Comb-honey market is very unsettled. Jobbers are closing out stocks at any price, owing to lack of demand. Extracted is in fair demand for best grades, but market is pretty well cleaned up. Bees wintered very well, and prospects for coming season are good. We quote fancy comb honey, per case, \$3.10; No. 1, \$3.00; No. 2, \$2.50. White extracted honey brings 8; light amber, in cans, 7; amber, in cans, 6. Clean, average yellow beeswax brings 25.

Portland, Ore., March 12. Pacific Honey Co.

DENVER.—With the exception of a small lot of extra fancy white comb honey we are entirely cleaned up. Our supply of extracted is sufficient only for our local requirements. Demand for extracted in carlots continues strong. There is also a fair demand for comb honey in carlots which is unusual this late in the season. We are quoting the following jobbing prices: Extra fancy comb honey, per case, \$3.15; fancy, No. 1, and No. 2, out of stock. White extracted honey brings 9 to 9½; light amber, in cans, 8½ to 9. We pay for clean average yellow beeswax, 33 cts. cash, 35 in trade, delivered here.

Colorado Honey-Producers Ass'n.

Denver, Colo., March 15.

SAN FRANCISCO.—Extracted honey is about cleaned up—a few straggling lots, generally off-grade stock, arriving. There is a large demand for better grades, but none to offer. Comb honey is gradually cleaning up. We quote extra fancy comb honey, per case, \$3.00 to \$3.10; fancy, \$2.75 to \$3.00; No. 1, \$2.25 to \$2.50; white extracted honey, none; light amber, in cans, 8 to 9; amber, in cans, 6 to 8. Clean average yellow beeswax brings 30 to 33.

Leutinger & Lane.

San Francisco, Cal., March 13.

LOS ANGELES.—These prices are what the retailer pays our wholesale customers, not what we are buying at. Last season's stock of extracted honey is exhausted. New honey is not being extracted yet. We quote extra fancy comb honey, per case, \$4.25; fancy, \$3.85; No. 1, \$3.25; No. 2, \$2.50. Clean average yellow beeswax brings 35.

Geo. L. Emerson.

Los Angeles, Cal., March 18.

KANSAS CITY.—The market on comb honey does not pick up very fast in this section. Demand for extracted still remains good. Comb-honey stocks are light, but the demand is light. We quote extra fancy comb honey, per case, \$2.85; fancy, \$2.85; No. 1, \$2.75; No. 2, \$2.50. White extracted honey brings 12; light amber, in cans, 10; amber, in cans, 8. Clean average yellow beeswax brings 35.

C. C. Clemons Produce Co.

Kansas City, Mo., March 17.

PHOENIX.—Greatest demand for extracted honey in car lots known here for twenty years; also highest price offered. Last car shipped sold at \$8.00 per case. Bees are wintering well; best prospects for many years for the coming season. Honey is all sold. Clean average yellow beeswax brings 30 cts. cash.

Wm. Lossing.

Phoenix, Ariz., March 18.

ST. LOUIS.—Extracted honey of all descriptions is in good demand, and supplies very light. There is some improvement in demand for comb honey, but stocks here are quite ample. Extra fancy comb honey per case, brings \$3.25; fancy, \$3.15; No. 1, \$3.00; No. 2, \$2.50. Light-amber extracted honey in cans brings 10 cts.; amber, in cans, 8½; in barrels, 8. Clean average yellow beeswax brings 36c.

R. Hartmann Produce Co.

St. Louis, Mo., March 17.

SYRACUSE.—There is no material change in the market here. The retailers have not moved their stocks as fast recently as they were doing some time ago. Generally speaking, retailers as a rule are well supplied. We quote extra fancy comb honey, per case, \$3.84; fancy, \$3.60; No. 1, \$3.36; white extracted honey brings 10; light amber, in cans, 10.

Syracuse, N. Y., March 20.

E. B. Ross.

BUFFALO.—Demand is very light. Supply seems to be sufficient; quality of stock good; yet there seems to be very small demand for comb honey. Demand seems to be more on strained honey, of which there are no offerings on this market. On comb honey we quote No. 1 white clover 14 to 15, and buckwheat 11 to 11½.

Buffalo, N. Y., March 16.

Gleason & Lansing.

ALBANY.—For comb honey the demand is light; prices nominal—white, 12 to 13; mixed and dark, 11 to 12; fancy, 13 to 14; No. 1, 11 to 12; No. 2, 10 to 11. White extracted honey brings 10 to 11; light amber, in cans, 9; dark, in cans, 8½. Clean average yellow beeswax brings 35.

Albany, N. Y., March 19.

H. R. Wright.

PHILADELPHIA.—Our market shows little change since last quotations. Our best white comb honey is moving slowly; 18 cts. case count: sold out on all undergrades of comb, which bring 10 to 12. We have had somewhat more extracted, buckwheat bringing 6½ to 7½; amber, 6½ to 7½.

Philadelphia, Pa., March 17.

Chas. Munder.

PITTSBURG.—Market is draggy—slow sale; no change in prices. We quote extra fancy comb honey, per case, \$3.75 to \$3.90; fancy, \$3.50 to \$3.60; No. 1, \$3.00; No. 1 buckwheat, \$3.40 to \$3.50.

Pittsburg, Pa., March 12.

W. E. Osborn Co.

BOSTON.—Sale of comb is steady; extracted cleaning up, short. We quote extra fancy comb honey, per case, \$3.75; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.75. White extracted honey, in barrels, 9 to 10.

Blake-Lee Co.

Boston, Mass., March 17.

LIVERPOOL.—Honey is in good demand at \$1.20 to \$2.40 per cwt. advance on last quotations—479 packages offered and sold. We quote Jamaica, set pale, \$24.00 per cwt.; liquid dark to amber, and setting, \$20.40 to \$22.08. Cuban, liquid dark to

amber and setting, sells at \$17.28 to \$20.64; set amber, \$19.92 to \$20.04. San Domingo, i.e. dark to amber, brings \$20.40 to \$21.36; Chilian, \$18.00 to \$19.20. Beeswax is dearer; 8 packages were offered and sold. Jamaica, ordinary to fair, brings \$12.54 to \$44.34; other West Indian, \$41.28 per cwt. Liverpool, England, Feb. 23. Taylor & Co.

TEXAS.—No honey on the market at this time. Clean, average yellow beeswax brings, on very unsettled offers, from 27 to 35. J. A. Simmons. Sabinal, Texas, March 14.

CLEVELAND.—Very little change in our market during the past 30 days. The demand continues light, but the supply is quite limited and prices steady. We quote fancy comb honey, \$3.65 to \$3.75; No. 1, \$3.40 to \$3.50; No. 2, \$3.00 to \$3.25. Cleveland, O., March 19. C. Chandler's Sons.

MONTREAL.—Stocks are light, demand good. We quote extra fancy comb honey, per case, 18; fancy, 17; No. 1, 16; No. 2, 14; white extracted honey brings 14; light amber, in cans, 13; in barrels, 12½; amber, in cans, 12; in barrels, 11½.

Gunn, Langlois & Co.

Montreal, Que., March 17.

HAMILTON.—Honey is selling fast for first-class but dark honey is slow. We quote extra fancy comb honey, per case, \$2.75 per doz.; No. 1, \$2.50; No. 2, \$2.00. White extracted honey, in 60-lb. tins, 13½; light amber, in cans, 11.

F. W. Fearman Co., Ltd.,

Hamilton, Ont., March 16. MacNab St. Branch.

TORONTO.—Stocks are moving out freely at advanced prices; 60-lb. tins now selling at 14 cts. per lb. Eby-Blain, Ltd. Toronto, Ont., March 20.

CUBA.—Light amber, in cans, brings 70 cts.; amber, in cans, 70. Clean, average yellow beeswax, per lb., brings 38. A. Marzol.

Matanzas, Cuba, March 13.

FLORIDA.—No honey on this market now at all. Wewahitchka, Fla., March 16. S. S. Alderman.

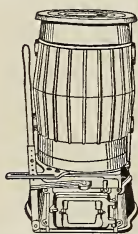
MEDINA.—No material changes are noted in the honey markets in the past month. Comb-honey demand does not develop as well as we anticipated it would. Extracted is still in demand at top prices. The A. I. Root Co.

Medina, O., March 20.

VICTOR and HOME VICTOR

Multiple System
Water Heaters for
House Heating

Heats bath and kitchen boiler too.
ONE STOVE AND ONE FIRE
YEAR ROUND. There is nothing
like it. Send for booklet.



S. V. Reeves, Mfr.
Haddonfield, N. J.

BANKING BY MAIL AT 4%

Distance

is no hindrance to saving money by mail at 4 per cent compound interest with this bank.

A special BANKING-BY-MAIL department is maintained where deposits are received from all parts of the country.

Money may be safely sent in the form of check, draft, money order, or the currency by registered mail.

Write for detailed information concerning this BANKING-BY-MAIL plan which assures 4 per cent interest and complete safety.

THE SAVINGS
DEPOSIT BANK CO.
MEDINA, OHIO

A. T. SPITZER, Pres.
E. R. ROOT, Vice-Pres.
E. B. SPITZER, Cashier.

ASSETS OVER ONE MILLION DOLLARS

BEE SUPPLIES Send your name for new catalog.
Dept. T, CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Wanted: Old Combs and Slumgum

For lowest freight rate bill as "beeswax refuse." Our steam process removes every ounce of wax. We render on shares.
Superior Honey Company, Ogden, Utah

Michigan Beekeepers

APRIL --- This month you should decide whether you will produce the maximum crop from your locality.

You can get it if you go after it.

The necessary new equipment should be "ROOT QUALITY." Success comes easier with the best goods. We sell Root's Goods in Michigan. Let us send YOU our catalog. . . Beeswax wanted; 31 cts. cash, 33 cts. in exchange for goods for it delivered here.

M. H. Hunt & Son, Lansing, Michigan
510 Cedar Street, North

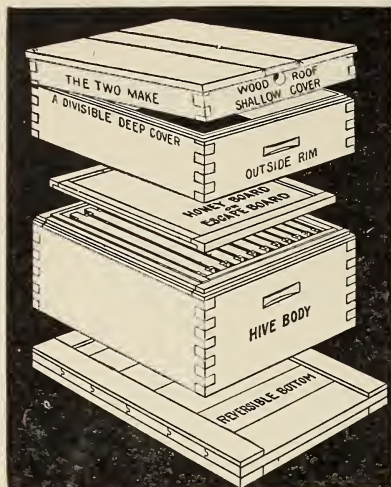
Headquarters for Bee Supplies

Root's Goods at Factory Prices
for Ohio, Kentucky, Tennessee

We carry a large and complete stock of bee supplies, and are prepared to give you prompt service. . We have just received several carloads of new fresh supplies. . . Send for our catalog.

C. H. W. Weber & Co., Cincinnati, O.

2146 Central Avenue

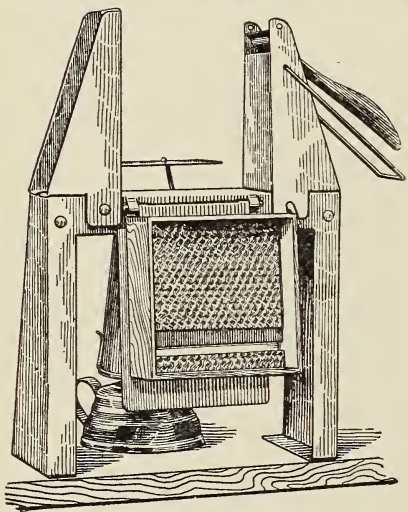


Protection Hives

Price for 5 hives with outside rims \$13.75, without rims \$12.00 F. O. B. Grand Rapids, Mich. Delivered to any station in the U. S. A. east of the Mississippi and North of the Ohio Rivers, with outside rims \$15.00.

Mr. Jay Cowing of Jenison, Mich., has 235 of these hives in use and 40 in single-wall hives, his 1916 increase. He has just purchased another lot of Protection Hives and says the approximate extra cost of \$1.00 per hive over single-wall hives is the best kind of an investment for him. He is a beekeeper of more than 15 years' experience and his 1916 crop was 580 cases of 32 sections each fancy comb honey. His winter and spring losses of bees from one cause and another have never exceeded 10 per cent even in the most severe winters, like 1908-9 and 1911-12. Mr. Cowan bought some of the first Protection Hives offered on the market and they have proven so satisfactory with him that he is still buying them.

THEY ARE DOUBLE WALL, WITH AIR SPACES OR PACKING AS YOU MAY PREFER. The outer wall is made of $\frac{3}{8}$ material and will last a life time. Send for a catalog and special circulars, showing large illustrations.



Section-fixer

A combined section press and foundation-fastener of pressed-steel construction. It folds the section and puts in top and bottom starters all at one handling, thus saving a great amount of labor. With top and bottom starters the comb is firmly attached to all four sides — a requirement to grade fancy. Increase the value of your crop by this method. H. W. Schultz, of Middleton, Mich., in writing us says: "Your section-fixer is the best yet; can put up 150 sections per hour with top and bottom starters." Price with lamp, \$2.75. Shipping weight 5 lbs. Postage extra. Send for special circular fully describing this machine.

Tin Honey-packages

A local wholesale house secured a carload of tin plate in September that was promised for April. Conditions are now even worse. When it is necessary to order tin plate a year or more in advance of the time it is wanted for use, advances in prices must be expected. The highest bidder will get the stock. Freight at this time is very slow and uncertain. Prices are liable to advance. It would be a wise thing to secure your packages for the 1917 crop. Our three-year contract is giving us some advantage over general market quotations. Send us a list of your requirements at once.

60-pound cans, one and two in a case.

FRICITION-TOP TINS.

	2 lb. cans	2 ½ lb. cans	3 lb. cans	5 lb. pails	10 lb. pails
Cases holding	24	24	...	12	6
Crates holding .....	...	...	...	50	50
Crates holding	100	...	100	100	100
Crates holding	603	450	...	203	113

A. G. Woodman Co., Grand Rapids, Michigan

Who Sells Supplies?
F. A. Salisbury

Who Sells Supplies?
F. A. Salisbury

We are in a position to
make quicker delivery of
goods to beekeepers for

The State of New York

than any other dealer---
being situated in center
of the state, and having
several railroads besides
electric trolley. . . .

This last winter we have had
more business than usual, and
orders larger. . Beekeepers are
more and more ordering their
goods early--this is a wise thing
to do. Sometimes the railroads
are slow in making delivery. .

F. A. Salisbury, Syracuse, New York
1631 West Genesee St.

Personality of LEWIS BEEWARE

No product can be better than the sum total of the skill, brains, and conscience of the men behind it. This gives the product personality.

What is the Personality of Lewis Beeware and the Company behind it?

The G. B. Lewis Company has been in the business of manufacturing Bee Supplies for forty-three years.—It has grown from a carpenter shop to a plant covering nearly six acres of ground, with an annual output of thirty million Sections and one hundred thousand Hives.—During all these years in the face of advancing prices on material and labor, the scarcity of suitable lumber, the competition of cheaper and inferior goods it has had many opportunities and inducements to cheapen its product at the expense of quality—but it has ever steadfastly maintained one standard of quality and workmanship. LEWIS BEEWARE IS THE SAME TODAY, WAS THE SAME YESTERDAY AND WILL BE THE SAME TOMORROW.

The business has been under one management and the lumber has been bought by one buyer for twenty years. He is still managing the business and buying the lumber. The head mechanic came into the factory when a boy. He has been supervising for forty years. The bee-hive superintendent has been making bee hives for thirty-three years. The section boss has been watching Lewis Section machinery and output for thirty-two years.

This is the Personality that goes to make up Lewis Beeware. Does it mean anything to you?

If you believe that "a bee hive is a bee hive" and are not particular about quality or workmanship, then any make of bee supplies will suit you; BUT—if nothing short of the best will do you, then you want

Lewis Beeware

Buy your metal goods and appliances where you like, BUT "if it's made of wood" insist on LEWIS BEEWARE—every package of LEWIS Hives and every crate of LEWIS Sections bears the BEEWARE brand. LOOK FOR IT—INSIST ON IT.

G. B. LEWIS COMPANY

Sole
Manufacturers



Watertown,
Wis.

GLEANINGS IN BEE CULTURE

APRIL, 1917



EDITORIAL

THE OUTLOOK for the honey-producers of the country is exceedingly bright. While



THE HONEY OUTLOOK FOR 1917 BRIGHT

the winter has been a little severe in some localities, especially in the North-

west and in the extreme South, it is reasonably certain now that there will be an enormous demand for extracted honey next season. The markets are practically cleaned up, and the new crop will be snapped up at good prices. There probably will be a good demand for comb honey altho the demand may not be so active.

In the early part of 1916 the clover crop looked to be so enormous that prices began to sag; but toward September they began to advance, and they have been going up ever since. If there should be a big crop in sight this season, prices will start off moderate again; but winter losses in some sections indicate that there will be a shortage of bees; if so, prices will be firm at the very start. See our "Just News" Department for reports on winter losses.

There has been a large amount of snow in the clover districts, and, so far as we know, in most localities clover is looking well. The prospects in the alfalfa and mountain-sage districts are also good. If there should be a good crop all over the country, prices will continue good because it will be impossible to glut the market next season with extracted. If the crop should be short, we predict that the liquid article will reach a figure that it never touched before except in its early history, when it brought 25 cts. a pound; but it will probably never reach that figure again unless the purchasing power of a dollar goes lower than it is now.

There is sure to be a big demand for honey, whether the Great War continues or stops. If it keeps on, the armies of the world will continue to ask for honey. If it stops, the demand will still be great on account of the general shortage in sugar and other food products.

IN THE *Beekeepers' Review* for May, 1916, appeared an article by A. H. Guernsey,

of Ionia, Mich., in which he describes his method of transferring. The Guernsey



TWO KINKS IN TRANS- FERRING

method has been used by many beekeepers, and there have also been a number of other plans quite similar to it.

Mr. Townsend, in his comment on the plan, suggests a couple of "kinks." These we are incorporating into the plan itself, which then appears in substance as follows:

Do not transfer until the old hive is full of bees in the spring; then expose the combs by taking off the cover or by turning the hive upside down. Set the new hive on top with full sheets of comb foundation, or, better still, with drawn combs. Select a comb partly full of brood and put this in the center of the new hive. In four or five days the queen will probably be found laying eggs in this comb. When looking for the queen at this time, instead of taking the frames out, first lift the new hive off, in order to catch the queen above; otherwise, at the first disturbance, the queen is likely to run down below.

When the queen is found, place a queen-excluder between the two hives, thus keeping the queen in the new hive.

Supers may now be put on if conditions warrant, and the work will go on without interruption.

Close all openings or entrances at the bottom of the old box hive, so that not a single bee can get in or out. Then provide a wide slanting alighting-board to direct the bees to the entrance of the new hive, now one story above the old entrance.

Any time after 21 days replace the queen-excluder between the two hives with a bee-escape board put on upside down, so that the bees will be trapped out of the old hive below up into the new hive. It is easy for bees to go down thru an escape, but not so easy for them to work their way up thru it. To make it easier, tack a strip of wood

across the board in such a way that the edge comes flush with the side of the hole in the escape. This gives the bees a foothold.

If desired, the old hive may be left in its place under the new one until some cool morning in October, when it can be removed



ANOTHER BULLETIN, No. 431, on sacbrood, by G. F. White, Bacteriologist in the United States Department of Agriculture, is before us. This same



**SACBROOD
SOME LATER
STUDIES**

author in Bulletin 129, Bureau of Entomology, made a preliminary report on the same subject, a review of which appeared in GLEANINGS for March 15, 1913 page 171.

At that time the author had gone far enough to prove that sacbrood was contagious but not a serious disease; and he was then of the opinion that the cause was a filterable virus which he extracted from the juices of the dead larvae. The present bulletin confirms his previous opinions, but goes much further into the study of the disease. It contains 50 pages, detailing very minutely his experiments. While it does not set aside any tentative conclusions arrived at in the former one by the same author, yet it does go into the matter so completely and exhaustively that the conclusions may now be considered final.

Sacbrood, formerly called pickled brood, dead brood, heated brood, and sometimes confused with both American and European foul brood, especially the latter, has now been determined to be a distinct disease. Up till the time when Dr. White began his work it was generally called "pickled" brood, so named by Dr. Wm. R. Howard, of Texas. But Dr. White's work is so thoro that we must conclude that Dr. Howard was either working with another disease or else made a mistake in his conclusion as to the exciting cause.

Sacbrood after two or three days of sealing looks very much like American foul brood, particularly in the matter of perforated and sunken cappings. American foul brood is normally a disease of the *sealed* brood, while the European type is normally a disease of the *unsealed* brood. Sacbrood, therefore, is in one respect at least similar to American foul brood, and it has certainly been a great many times mistaken for that disease. The appearance of the dead larvae themselves is more like that of European foul brood in that the skin or covering to the larva is never broken. European foul brood attacks the

larva mainly before it uncurls. Sacbrood attacks its victim after it has stretched out on the bottom of the cell walls, and a day or two after it is sealed, or just about the time when it begins to spin its cocoon. It does not have the characteristic odor of American foul brood, nor yet does it have the pickled smell mentioned by Dr. Howard.

The general description of sacbrood in this bulletin is so minute and accurate that no one need make any mistake between the three forms of the brood diseases. Certainly a foul-brood inspector who would read this bulletin carefully, and who is familiar with the other forms of American and European foul brood, would be able to make a pretty accurate diagnosis. We therefore consider that this bulletin will be unusually valuable, because it will enable the expert beekeeper and the inspector to determine whether he has one of the diseases which are dangerous and destructive, or whether he has a mild disease that will disappear of itself, probably, within a month.

Up to the time this bulletin was published, the average foul-brood inspector could not be entirely sure whether he had a case of dead brood or American or European until he could have a bacteriological determination from Washington; and while as before he should submit all samples to the Government, as he has done heretofore, he will now with this latest bulletin before him be able to come to a pretty definite conclusion as to whether it is sacbrood or not.

The bulletin contains some very fine drawings, greatly enlarged, showing the normal and the diseased specimens of larvae in various stages of their development. The drawings alone will give one a pretty accurate idea of the external symptoms.

As to the exciting cause, Dr. White has proven out his former belief that it is due to a filterable virus. That this is the cause beyond question he has proven time and time again by macerating the bodies of the bees of the diseased specimens, and introducing the virus into a syrup fed to healthy colonies. With this he could make a case of sacbrood at any time, and about as bad as one could wish to see.

Very fortunately, sacbrood will disappear of itself within a month. The virus is easily killed by heating it to a temperature of 133 F. in water or 158 in honey. It is easily destroyed by the direct rays of the sun, but it seems to be peculiarly resistant to drugs.

The probabilities are that the disease is not transmissible thru honey, or at least after it has been off the hive for a month.

It could not, therefore, be carried thru bottled honey. Indeed, a temperature of 158 would kill any sacbrood virus that might be in the honey.

When it is remembered that the temperature of all bottled honey is about 160 degrees before being sealed, it will be clear that the disease could not be carried thru that medium.

Combs of honey containing sacbrood virus standing in hives or in stacked-up supers will become immune in a month. Dr. White says that the only way the disease can be carried is from the dead larva to the healthy. He even goes so far as to say that a frame containing sacbrood could be put into a healthy colony and probably not do very much damage. There is no danger that it may be carried on the clothing or on tools.

Copies of this bulletin No. 431 can be had for 10 cts. by applying to the Superintendent of Documents, Government Printing office, Washington, D. C. Every foulbrood inspector of the country should certainly have a copy.

MR. R. F. HOLTERMANN at the Ohio State convention objected to shallow extracting-frames on the ground that they necessitated an extra set of supers, frames, and general equipment.

He has something like 1300 colonies, all on Langstroth frames. He said he would not take shallow frames as a gift if he were compelled to use them. It is a great advantage, he said, to have all frames uniform either for extracting-supers or for the brood-nest, both of which should be one and the same thing. The probabilities are that most beekeepers in the United States are in line with Mr. Holtermann in both theory and practice.

IF ONE LIVES in a locality that is hilly and roads bad, he will have to depend on a wagon and team. If he lives in the country where roads are macadamized he may well consider the merits of

the automobile truck. Little cars costing \$325 without the body can now be secured. A wagonbox can be put on for \$25 more, making a neat serviceable truck. While it may not be large it will carry from twelve to fifteen colonies at a trip; and in an after-

noon one can move a whole yard of bees on these light trucks when it might take him all day to do so with a wagon.

Outyard beekeepers of the country are rapidly putting in automobiles. A light machine that can be used for carrying passengers or bee-supplies is one that the beekeeper should select.

A LARGE number of comb-honey producers, on account of the great scarcity of extracted and an oversupply of comb honey the past season will produce extracted for this year. So many, in fact, are going over into the production of the liquid article that it is possible and even probable that section honey will be scarce next year. There is one thing certain: It will be impossible to produce too much extracted honey for 1917. Prices will be firm at the very start.

NEVER WAS there such a great opportunity for the beekeeper before. The extracted honey is entirely cleaned up on the market, and every prospect is bright for an excellent season ahead. Beekeepers, take off your hats and shout! This is just what you have been waiting for. If there ever was a year when the beeman should get busy, now is the time. So take off your coats and get to work.

FRANK COVERDALE made the statement at the Iowa convention that 300 colonies of bees with him were equal to the income of a 160-acre farm. If this statement were made at an

ordinary farmers' institute, those who get their living from what they get out of the soil would be inclined to think Mr. Coverdale does not know what he is talking about. He is in fact one of the most successful farmers in all the West. He not only knows how to raise crops and fine cattle, but he is one of the best beekeepers in the United States. Even if he does advocate and practice furious swarming, he "gets there" just the same.

A DANDELION blooms on GLEANINGS cover this month. A few days more and this same modest and brilliant,

LOVED AND HATED

*The Dandelion as a Honey-plant
and as a Nuisance*

By E. R. Root

humble and tyrannical, hated and loved plant will be blooming over large areas of North America, Europe, and Asia—and how many other continents the botanist will not say nor deny.

Nearly every beekeeper whom we have met in our travels over the clover section of the country has acknowledged that he is "in bad" with many of his fellow-townspersons because they allege that the bees are scattering dandelion and sweet-clover seed in their locality. "Why," they say, "dandelions are more numerous in this town than anywhere else; and surely Mr. Beekeeper has been scattering the seed around town for the sake of his bees."

In some localities where the soil is just right (a little acid), and where bees are kept, dandelions thrive tremendously. Beekeepers do not scatter the dandelion seed, but the bees so thoroly pollinate the blossoms that practically every seed matures. With the same soil conditions and no bees, dandelions do not appear to thrive. Here in Medina, where bees have been kept for fifty years, dandelions grow so rank and thick some springs that they seem to be about the only early-summer vegetation to thrive on our village lawns. This rank growth of dandelions extends even beyond the limits of our town, and a perfect sea of yellow fills the landscape in every direction.

One day when coming into Medina on a street-car a lady who was a resident of Medina (somewhat on the spinster order, and who knew everything and everybody's else business) said to another lady in the same seat with her and within the hearing of GLEANINGS' editor: "You will soon be coming to the dandelion town of Medina."

It was in the spring, when the dandelions were out in all their glory; and when the car arrived at our home town the anti-dandelion lady proceeded:

"Yes, you see there is

no grass growing here—nothing but dandelions. You can see that it is all yellow as far as the eye can reach. This is

the town where that man Root has scattered seed of the Giant variety all over the town. He keeps bees here, and the dandelion is a great honey-plant; but it is the ruination of all the lawns in the town. He ought to have to get down on his knees and pull every one of 'em up, so he had. It would just do that man good to have to get down on his knees in real earnest once. We call these miserable weeds 'Root's roses.'"

The landscape from the car window seemed to support unquestionably the indictment and warrant the punishment—from the home-owner's view.

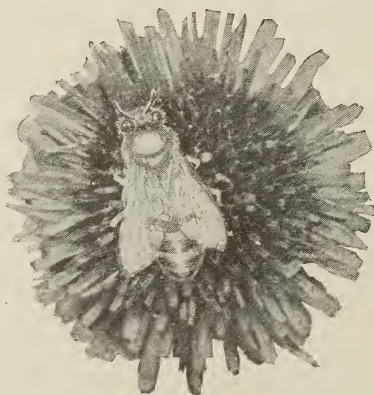
A striking proof of how bees (not their owners) promote the growth of dandelions was given in this vicinity several years ago. A man living 12 miles from Medina but where there were no bees, being very fond of dandelion greens, attempted time and again to propagate dandelions near his home, and he failed utterly.

Dr. C. C. Miller once told us that he was a very much despised man when the dandelions came into bloom.

The dandelion's one good excuse for existence is found in its great service to the honeybee in producing abundant pollen. It yields little or no honey.

While there is no question that dandelions are a nuisance on a lawn, and require constant warfare, they make fine pasturage for milk cows, and make excellent greens. Their beauty would be widely proclaimed if not so common and so unfortunately associated with injury to lawns. Give a cow her choice and she will grab up the succulent leaves of the dandelion in preference to almost any other grass; and such milk! the very finest and best that one can have.

While we do not advocate, and never have, the scattering of dandelion seed, yet, if weeds must be, the dandelion is far from being the worst offender on the weed list. Most weeds are just to be hated. The dandelion has some lovers—the bee, the cow, and the beekeeper.



A Dandelion Lover.

THIRTY-
two years
ago, at the
time I was mar-
ried, my hus-
band and his
father kept
about thirty
colonies of bees

in box hives. These were approximately 13 inches square and 25 inches high. The entrance was full length on all four sides, made by a nail projecting from the bottom at each corner of the hive. The height of the entrance was governed by the distance the nail projected, and was anywhere from $\frac{3}{8}$ to 1 inch.

An auger-hole in the top of the box, and an old-fashioned sap-bucket turned upside down on top, completed the equipment needed in the apiary. Whether a pail was full of honey or not was learned by sounding it on the sides, just as is done in selecting a ripe melon. Occasionally some very nice pails of white honey were secured, for the country was new. Raspberries and fireweed, or willowherb, abounded in the pine slashings on all sides. There was basswood in the forest, and plenty of white clover in the pastures and along the roadsides.

SOME OF OUR EARLY TROUBLES.

Winter losses often took half of the colonies. In the spring we could hardly tell which would rule the hives—mice, millers, or the bees. In those days the bees were all black, and we could count on swarming any time from May until August.

During the months of June and July it was a common occurrence to see all hands, including women and children, with bells, horns, tin pans, and guns endeavoring to stop a runaway swarm while the dog ran in every direction, leaping and barking, wondering what all the excitement was about. But even with all this fuss the bees sometimes escaped to the woods. Drones were very numerous, and we often dropped our work and ran out in haste only to find the uproar caused by these big noisy fellows out for an afternoon play.

The bees never forgot to celebrate the 4th of July, also the nice Sundays during the swarming time. Often after a rain, several swarms would come out before the drops had hardly ceased to fall, if the sun happened to show his smiling face.

OUR FIRST MOVABLE-FRAME HIVE.

Two years after we were married a friend bought a colony of

COMB HONEY --- FEW SWARMS

*Heavy Winter Losses, and Excessive
Swarming of Years Ago, Eliminated;
Good Crops from all Colonies*

By Mrs. S. Wilbur Frey

bees in an old Langstroth hive with crosswise frames as shown in the illustration, Fig. 2. That first season he increased to seven colonies

and sold his comb honey at 15 cents a section. We were very anxious to see this wonderful hive, and the following spring found us with fifteen new ones of this pattern, which we filled with bees during that season. But we were doomed to disappointment. When the warm days of another spring came all we had in the new hives was dirty combs and dead bees. We had tried to winter with no additional protection except an oilcloth over the brood-nest. That spring a catalog came to us from Kendallville, Ind., that revived our spirits. It explained how hives could be protected by chaff on all sides and on the tops, the chaff being held in place by a strip of cloth reaching clear around the hive, folding over at the top of the brood-nest, and having the lower edge tacked to the bottom of the hive.

My father-in-law did not approve of our new ideas; and when he saw us preparing to winter bees the second time in the new hives he requested us not to pack his share of the apiary, as he did not want *his* colonies to die. Our luck changed, however, for the packed colonies all lived, while those in over half of the unpacked hives died.

For several years swarming was the great problem, altho we occasionally had bad winter losses.

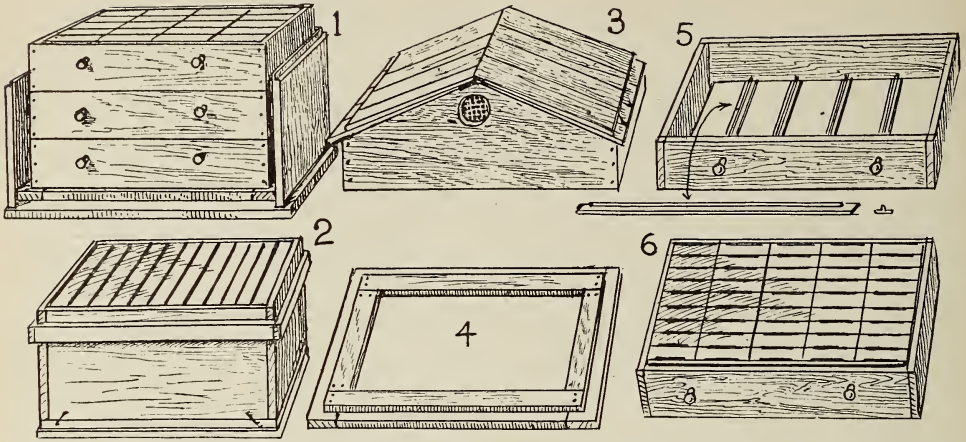
IMPROVED METHODS AND EQUIPMENT.

Beekeeping is very different now; for with our large hives and improved methods we seldom have winter losses, and swarming is nearly a thing of the past.

When we began to keep out-apiaries it became necessary to develop a method that would prevent swarming to a certainty. Perfect wintering and swarm prevention are the two points of advantage that I claim for my hive over all the other plans that I have used.

The super, as shown in the illustration, is very large, holding 45 sections. This easily satisfies the bees' desire for room, if other conditions are right. In my experience a large super is necessary for success in a comb-honey apiary. I have used this super for 24 years, and I have on hand over 300 of them. When I am





Details of Mrs. Frey's hive. The supers are enclosed in a large cap, Fig. 1, which with the deep gable cover Fig. 3 is large enough to hold three 45-section supers. To make the large cap fit the smaller brood-chamber below, a rack, Fig. 4, is put on first. Fig. 2 shows the original Langstroth hive used years ago.

careful to build the colonies up to uniform strength at the beginning of the season it is nothing to go thru a yard and find the work progressing in all the supers so nearly alike that no one can tell which colony is likely to be in the lead at the end of the season. We often take three of these large supers of comb honey from one colony in any fairly

good season, and I have never failed to get a good crop of honey.

The first supers I used held only 28 sections. I had 150 of this size, and I used them exclusively for a few years. They seemed to have so many faults, however, that I tried 50 32-section supers with fence separators. I have used these supers right



One of Mrs. Frey's hives with the mammoth cap and cover for holding supers. The little girl shown is her four-year-old grandchild, Beatrice Cain. When she was three years old she folded sections, placed them in supers, and picked papers out from between sheets of foundation. She is the "queen of the shop."

along on ten or twenty colonies up to this time. I can control swarming when using these supers, but it is hard to stop the desire to swarm. Large colonies often refuse to work thruout the whole season when swarming is prevented.

I have three out-apiaries, all of them run for comb honey. The fixtures are now the very simplest. I use no separators, no queen-excluders, and never watch for swarms. I seldom lose a swarm until the white honey-flow is over provided I do my part right. Sometimes, however, I get interested in other things and stay away from the outyards until the bees begin to swarm; but it takes only one visit then, and swarming is ended.

LARGE CAPS FOR WINTERING.

I winter with chaff cushions over the brood-nest. The cap for the 45-section super is far better for wintering than any smaller sizes. With the smaller ones the bees die off more, consume more honey, and dwindle worse in the spring.

I have wintered in clamps packed with straw, and in rustic hives with straw packed about the colony, but the large caps and

covers are the cheapest and simplest of all the methods I have tried. Several times when I was using the small-topped hives my winter losses cost me the price of the large caps and covers, and all I had to console me in the spring was daubed hives, empty combs, dead bees, and a few weak colonies.

A few years ago I could easily count a thousand colonies within a radius of five miles of our home; but a few hard winters, some poor seasons, and bee diseases have eliminated these until today I can not count fifty colonies not my own.

MY NEXT ARTICLE.

Next time I will tell how I dequeen all my colonies, and keep them strong until I am ready to requeen again, at the same time securing a larger crop than I possibly could if I allowed natural swarming.

One of my out-apiaries is eight miles from home, and one is three miles. I have always used horses in traveling, but we have an auto truck that I shall use this season. This will shorten the day's work very materially; and, besides, there will be no horses to feed and care for while I am at the yard.

Sand Lake, Mich.



IN the spring, under the stimulus of nectar and pollen brought in, the queen is not very long in getting filled with brood and eggs

all the cells that the bees are capable of covering. Until this happens there is nothing for the beekeeper to do unless it be to see that the bees are kept warm and have abundance of stores. Often, however, when this point is reached, there will be found a very great difference in the strength of colonies. Some may have only enough bees to cover a patch of brood not larger than the palm of one's hand, while others will have brood in five, six, or more combs.

There is a great deal of difference as to the rate of rapidity with which a colony having three frames of brood—let us call it three brood, for short—builds up, as compared with one having only one or two frames partly filled. In the white-clover regions of the North the first will go right along increasing in strength and be in good condition for the clover harvest, while the latter will remain stationary thruout the cool

SPRING MANAGEMENT OF BEES

*Always Help First those Colonies
that Need the Least Help, Leaving
the Weakest to the Very Last*

By Dr. C. C. Miller

is a good reason for the difference. In the stronger colony the proportion of outside bees needed to keep up the heat of the cluster is very much smaller than in the smaller one. While only a fourth of the bees may be needed for an outside wall in the first case, it may need seven-eighths in the latter case.

The aim, then, should be to bring as many as possible of our colonies, as soon as possible, up to that point of strength where they will go right along increasing. This is generally called equalizing, and generally it is equalizing, taking from the strong to give to the weak, but in some cases equalizing the strength of colonies would be the very thing to defeat our purpose. Suppose we have only three colonies, two of them so weak that, if left to themselves, they cannot build up in time for the harvest, while the third is just strong enough so that it will build up

days of April, perhaps losing in strength for a time, and become fit for storing a surplus only when the time for storing is over. There

in time to give a fair account of itself in surplus. Now suppose we equalize by taking from the strongest and giving to one or both of the weaker. But as the strongest was barely strong enough to be ready for the harvest, we have now weakened it so that it will store no surplus, and at the same time helped the others so little that we get no surplus from either of the three. So instead of increasing our prospects for a crop, our equalizing has decreased them.

The thing to do is to take the opposite course, and, instead of taking from the strongest, to add to it. So we will unite one of the weak colonies with the strongest. That will make it stronger, and it will develop still more rapidly, so that before long it will be able in its turn to give aid to the remaining weak colony, enough to bring up this latter to storing strength. Thus, altho we have one less number of hives containing bees, we have doubled the number of colonies yielding surplus.

So when we have a lot of weaklings on hand in spring, the right plan is to begin by strengthening those that are already the strongest.

But this condition of affairs is not very likely to be found in the apiary of an experienced beekeeper. Most of his colonies are strong enough in spring so that they will easily grow into good storing strength, while with proper management those that, left to themselves, would not be able to do anything on the harvest, can be brought up so that every colony in the apiary will be a storer.

The way to do this is to draw from the strong and give to the weak. That looks easy—is easy—but it is also easy for the beginner to proceed in the wrong way, and thus fail of full success. His first thought is likely to be that the weakest of the weak ones is the one that first needs help, and so he works on that basis, constantly giving help to those that need it most, leaving the stronger of the weak ones to be helped last. The rule should be exactly the opposite: *Always help first those that need the least help, leaving the very weakest to be helped last.* Along with this rule should go another: In drawing from the strong to help the weak, *never reduce a strong colony to less than four brood.* With these two rules constantly kept in mind there can be hardly any danger of making mistakes.

Let us now have a distinct understanding as to what is meant by "four brood," "a five-brood colony," etc. Nothing is entitled to be called a brood unless at least half the comb on each side is filled with brood, or brood and eggs. If a colony has brood in four of its frames, and one or both of the

outside combs are less than half filled, no matter how full the two central combs are, that's not "four brood," but "brood in four." So it may happen that a colony with two brood may be stronger than another colony with "brood in four." For there may be more brood in the two combs of the one colony than in the four combs of the other.

With this definition and our two rules in mind, let us on a good flying day in spring proceed to look thru the apiary; and suppose the strongest colony in the apiary has "brood in five." Nothing doing. For if we take one of its best brood from this strongest colony, it will be left with "brood in four," and our rule says we must not make it less than "four brood." But if, on this or a future day, we find a colony with five brood, we will take from it one brood with all adhering bees, making sure that we do not take the queen. The comb we take will be one of those containing the most sealed brood.

Where shall we put the brood and bees we have taken? In the apiary we may have all the way from "brood in one" up, and any colony having less than four brood needs help. So the first colony that we come to having "brood in four" will receive our frame of brood and bees. We need not, however, be so very particular, but give it to a three-brood colony if we happen to find one of that kind before reaching a brood-in-four colony.

Putting into a weak colony a frame of brood with strange bees will not endanger the queen so long as her own bees are so greatly in the majority; but it is well to take pains to put the strange bees at one side of the brood-nest, of course next to the brood.

In taking brood from a strong colony it may happen that we cannot find the queen. In that case we carefully brush off all the bees, but are particular to give this beeless brood only where we are sure there will be enough bees so that no brood shall be chilled.

In making our rounds we arrange the combs in each hive so that the first comb at the furthest side from us shall contain no brood—generally it will have pollen—but next to it shall commence the brood. Then the next time around it will not be necessary for us to go any further than the first brood on the nearest side in order to know just how many brood are in the hive. We will also make a record of the number of brood in each hive.

In our rounds we may come to a colony that has more than five brood. In that case

we take all the brood it can spare, only so we leave four brood in the hive.

In this way we make the rounds of the apiary, drawing brood and bees from each colony that has five brood or more, and giving to each colony that has less than four brood. A colony with four brood will be left as it is.

It is possible that there are so many strong colonies in the apiary that in this first round we shall be able to bring up to independent strength all the colonies in the apiary. In that case a brood-in-three colony will need two brood, and a two-brood colony will also need two brood. There will now be so large a proportion of strange bees that the queen will be endangered. Two ways out of the difficulty are before us. We may give a single brood today, and two days later another. Or we can give queenless bees which will treat kindly a strange queen. For this purpose we will draw brood and bees from the strong colonies, and put them in an empty hive on a new stand. All the better if there are enough to pile them two or more stories high. All the field-bees will return to their old homes, but abundance of young bees will be left. Two days later we can take these queenless bees with the brood, and, without any preliminary, use them wherever needed, no matter how weak the colonies to which they are given.

Unless we have been so exceedingly fortunate as to bring up to independent strength all colonies at the first round, we

will repeat the process every ten or fifteen days until every colony has at least four frames of brood. After the first time around we shall have the advantage of knowing in advance something about the strength of each colony, and which ones are strong enough to yield brood. So it will be a good plan to go first to a few of the strongest and get an advance stock of bees and brood, say half a dozen or so, if the apiary is of considerable size, keeping them in an empty hive to be used as needed.

Of course the number of strong colonies is constantly increasing, and the number that need help at the same time decreasing, so that at the last you can give as many brood as needed to each needy colony. The only safe way to give bees with several brood is to have the bees queenless, as already explained. The last ones to be helped are the very weakest, even down possibly to one or more with brood in only one, a mere handful of bees, the queen being the only really valuable part. As the season is now becoming advanced, bringing such a colony up to four brood will not be enough. It should be brought up to 6 or 8 brood, and even then it will have nothing but young bees. But each day the number of bees going afield will be rapidly increasing, and at least part of the flow can be utilized. But if the plan outlined be followed up the number that cannot be brought up to have the benefit of the full harvest will be very small, if indeed there be any.

Marengo, Ill.



THERE are two ways for a beekeeper to increase his profits. One way is to get more money for his crop, and the other to get more crop for the labor performed. This article has to do with the saving of time in performing a very important part of every beekeeper's labor; namely, the assembling of brood and extracting frames.

There have been a large number of different forms described in GLEANINGS for facilitating this work. I have tested many of them and found them good, but none of them, apparently, are as rapid as the plans described herewith.

When nailing frames one at a time we use a simple form, shown in Fig. 1. This

MAKING THE WORK COUNT

Methods of Assembling Frames that Improve the Quality of the Work and Shorten the Time of Doing it

By H. H. Root

consists of an upright frame-work containing a groove of exact size to hold a top-bar. When the top-bar is placed in position an end-bar

is put in place. Two nails are driven down thru it into the top-bar; then the end-spacing staple is driven in. The top-bar is reversed, and the other end-bar similarly nailed. Then the frame is taken out of the support, laid down on the bench (top-bar down), and the bottom-bar nailed on. Reversing the frame, letting it rest on the bottom-bar, and driving one nail down thru each end of the top-bar into an end-bar, completes the job. Forty to forty-five frames an hour is easy work.

For several months we have been using

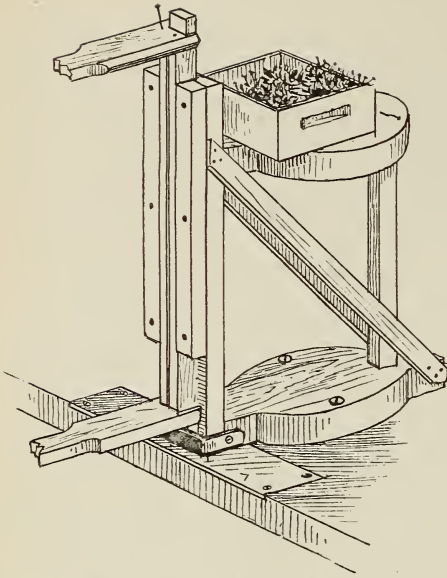


Fig. 1.—Form for nailing frames one at a time.

with a great deal of satisfaction a plan of nailing frames, the principle of which was originated by Wm. Cary, of Washington, D. C. Briefly speaking, the plan consists of a box or clamp large enough to hold ten frames, so that all ten bottom-bars and top-bars can be nailed at once. As shown in Fig. 2 there are only six boards needed to make this clamp. It is preferable that these be made of hard wood. The two end pieces, B and B', are fastened to the side pieces, A and A'—nailed solidly at one end and held by bolts and wing nuts at the other end. About an inch and a quarter from each end of the side pieces cleats are nailed to prevent the loose inside end pieces, C and C', from falling over. These loose inside end pieces are merely to support the end-

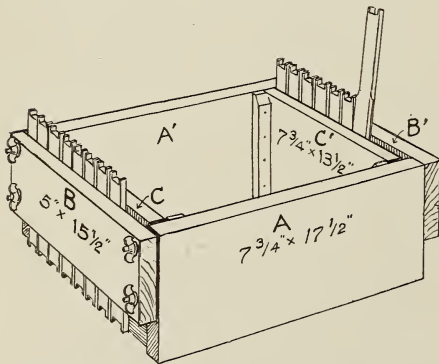


Fig. 2.—Form for nailing ten frames at once. V-shaped pencil-marks on the upper edge of B and B' assist in locating the end-bars with the V edges turned right. The V edges of the end-bars at the left must be turned to the back while those at the right turn to the front.

bars when they are dropped in ready for nailing on the bottom-bars. To assemble the clamp, cut the heads from four carriage-bolts about 1/4 inch by 4, and have a 1-16-inch hole drilled close to each end. Bore two 1/4-inch holes into the end of each side-piece of the box and care-

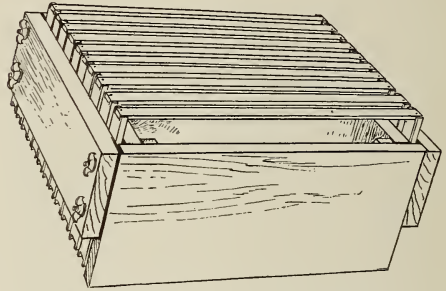


Fig. 3.—Nailing on the ten-bottom-bars.

fully drive in the bolts, taking the precaution first to make a mark on each one a uniform distance from the 1-16-inch holes drilled in order to know their location after the bolts are driven in, and then drive a stout nail thru the side of the boards and thru the holes in the ends of the bolts, thus locking them firmly so that they can not be pulled out. Bore the holes in the end-piece of the box a trifle large, about 5-16, so that the

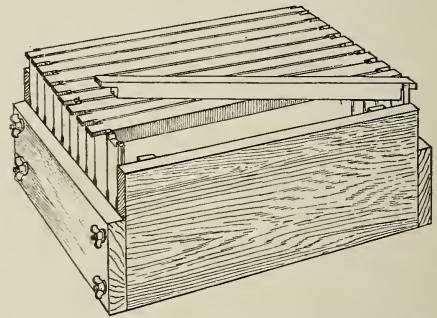


Fig. 4.—The entire box reversed ready for nailing on the top-bars. Just before nailing, the wing nuts are tightened so that the frames will be held square and rigid.

board will easily slide on the bolts. Washers and wing nuts complete the contrivance.

HOW TO NAIL THE FRAMES.

Locate the box on a good solid bench; drop the loose inside end-pieces in position and put in the twenty end-bars, upside down—ten at each end. In order to have the V edges all turned the right way it is a convenience to have V-shaped marks on the edge of each end-piece, as explained, Fig. 2; then by being careful to have the V edges on the end-bars correspond to the V's marked, the frame will always be nailed right.

Slip the ten bottom-bars into position and

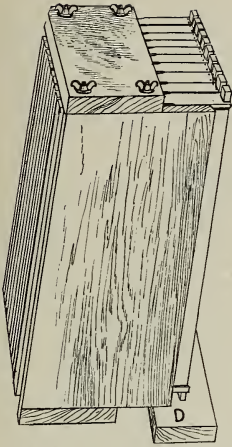


Fig. 5.—Ready for nailing thru the end-bars into the top-bars.

one nail thru each top-bar down into the end-bar—a little to one side of the center so they will be out of the way of the end-spacing staples to be driven in later.

Next, turn the box on end, Fig. 5, with the lower ends of the top-bars resting on a 1½-inch hard-wood board, D, firmly nailed to the bench. Drive two nails thru each end-bar down into the top-bar.

When driving in the end-spacing staples, instead of using one small block with a saw-kerf in the end to drive the staple, take a 5-16-inch hard-wood board about fifteen inches long; lay it on the end-bars up close to the top-bars and make a pencil-mark directly over the center of each end-bar.

With a saw make a cut at each pencil-mark a trifle deeper than the staple is wide. Tacking a piece of heavy tin along the edge of the thin board completes the staple-spacer.

Lay this spacer in position, Fig. 6, E. Drop ten staples into the saw-cuts; give each one a slight tap, then quickly drive them down flush with the top of the board.

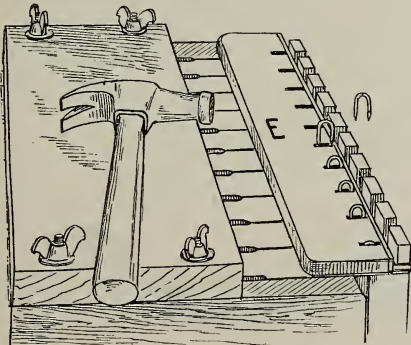


Fig. 6.—One staple-spacing block for all ten staples.

nail them, driving one nail thru each end down into the end-bars, Fig. 3.

Quickly reverse the entire box and its contents, and put the top-bars in place. Before nailing them, tighten the wing nuts, thus crowding the parts together rigidly, all perfectly true and square. When this is done, and not before, drive

The board may then be removed, and all the staples will be found driven in exactly the right place—all of them to the right depth.

After turning the box and the frames over on the bench, by loosening the wing nuts the box may be readily lifted off, Fig. 7, leaving the ten frames all complete.

It is not at all difficult to nail fifty frames an hour by this plan, every one of them absolutely square. Each group of ten frames requires about twelve minutes, the time being distributed about as follows:

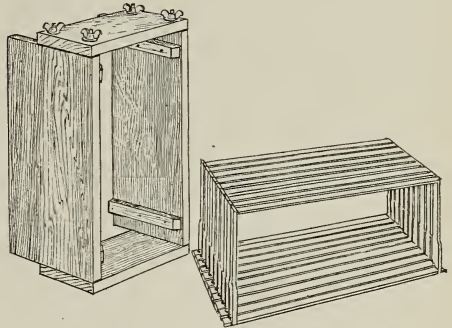


Fig. 7.—Clamp loosened and lifted off, leaving the ten frames all complete. Time, twelve minutes.

Locating the end-bars and nailing on the bottom-bars, three minutes; nailing on the top-bars, eight minutes; driving in the staples, one minute. By working rapidly, especially after a little practice, it is possible to nail sixty frames an hour, ten minutes to each ten frames. For assembling the frames, driving eighty nails and twenty staples, that is not so bad.

WIRING THE FRAMES.

For wiring frames direct from a spool, some sort of device is needed to hold the frames and the spool of wire. There are

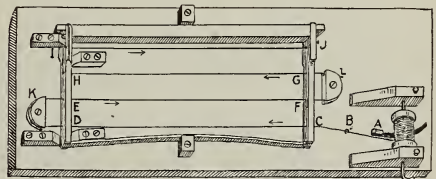


Fig. 8.—Form for wiring the frames. An inverted super-spring A held by a staple prevents the wire from kinking when it is slack.

some very good wiring-boards on the market, and quite a large number of practical forms have been described in GLEANINGS. I have found the one shown in Fig. 8 very satisfactory. A super spring stapled to the board keeps a slight tension on the spool, prevents the wire from springing over the ends of the spool, and makes it unwind properly and smoothly. As the wire is used

up, the diameter becomes less, hence there is less pressure of the spring. This is just as it should be; for when the wire is nearly all gone it unwinds harder, hence the decreased pressure evens it up very nicely.

The wire from the spool passes first under a staple, B. The end of the wire is passed thru the hole C and enough wire pulled thru to reach six or eight inches beyond the other end-bar. Then it is threaded thru D, passed around the smooth half-round block K, and thru E. Again enough wire is pulled thru to reach eight inches or so beyond the first end-bar, then the wire is passed thru F, around the curved block L, and thru G. About three feet more of wire is then pulled thru, the end passed thru H, all the slack pulled out, then thru I and finally thru J, where the end is secured firmly by being wound around a tack, and the tack driven home. With the right hand on the crank of the spool the slack may be all pulled out, then the wire slipped up over the half-round blocks K and L. By keeping a constant pressure on the crank while "picking" the middle two wires with the left hand the proper tension may be secured with little or no effort. The wire is then fastened by winding around a tack in the upper edge of the end-bar over the hole C.

The diameter of the half-round blocks K and L must be equal to the distance between the holes in the end-bars, and these blocks must be made of hard wood so that the wire will pull around them smoothly.

The block M is so located that the bottom-bar is pushed up out of line. This serves the purpose of holding the frame firmly; and then when the frame is taken off the board, by reason of the fact that the bottom-bar springs back to its usual position

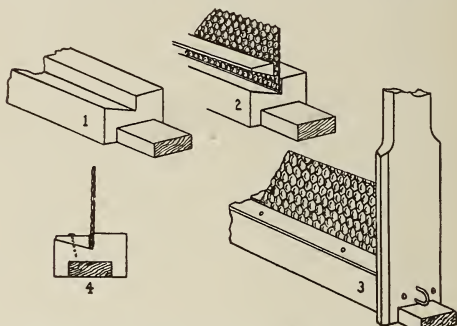


Fig. 9.—Foundation secured by a three-cornered wedge nailed in.

the wires are tightened slightly. The various blocks, as shown, are located with the idea of holding the frame firmly, and yet being out of the way for the threading of the wire back and forth. With this board it is an easy matter to wire ten frames in ten minutes, and keep it up right along.

IMBEDDING THE FOUNDATION.

Where one has access to an electric-lighting current an ideal way to imbed the wires in the foundation is to utilize the current for heating all four strands at one time so

Continued on page 304

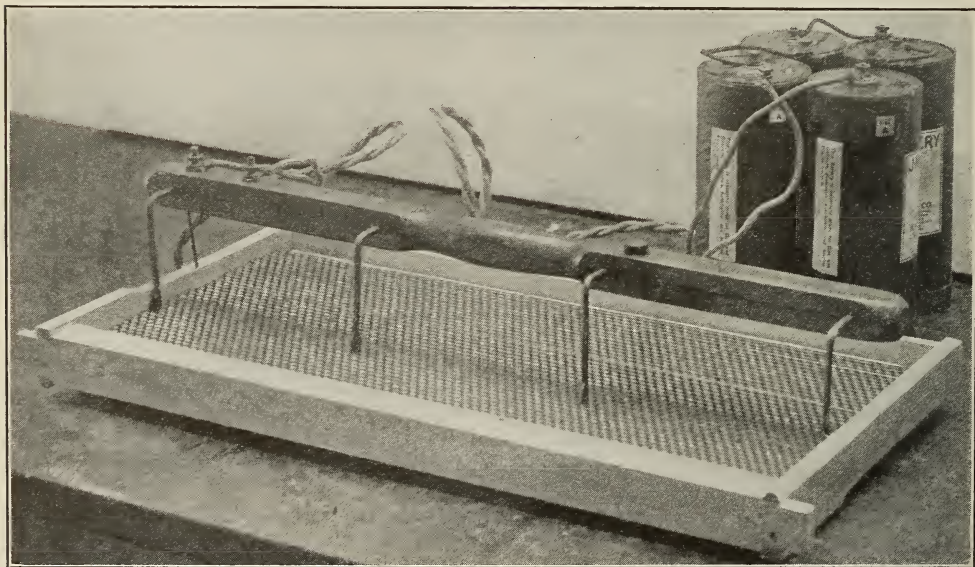
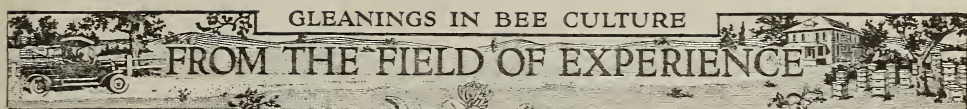


Fig. 10.—Imbedding wires in foundation by means of four ordinary dry cells which heat one strand at a time.



Conversations with Doolittle

"Please tell when bees can be set out of the cellar to the best advantage, and any other matters regarding their removal from the cellar that you think of importance."

Perhaps at no time of the year is bee-keeping more fascinating than at the time when we set the colonies out on their summer stands. Regarding the time of doing this there seems to be a difference of opinion among practical beekeepers. Some men of large experience in this matter think it better to set them out on the first favorable day in March, telling us that these early flights are beneficial in many ways—that they largely prevent what is called "spring dwindling," which, some years, takes off 50 per cent of the colonies during April and May. Others believe it is better to wait till the soft maple and elm are in bloom, or even later, if the prospects for warm weather are not favorable, claiming that, with the advent of warm weather, each bee alive at that time can bring to maturity three young bees, while in early spring it takes three bees to bring one on the stage of action.

My experience, covering nearly half a century, tells me that the best time depends upon several conditions. If the bees have wintered well, so that they remain very quiet, almost dormant, in the spring, I believe it is better to wait until settled warm weather before removing them from the cellar. On the other hand, if the conditions have been such that early spring finds them very restless and uneasy—many leaving the hives and dying—my experience has been that the sooner they are set out the better. There is often, however, what may be called an intermediate condition when it is not easy to determine when to remove them, there being no material difference, apparently, whether they are set out in early March or in late April. Those set out consume more stores; but if there is no very severely cold weather after they are set out they will be enough stronger at the beginning of the white-honey harvest more than to offset the extra stores consumed. On the other hand, if there is very severe weather, especially if it comes after they have been set out long enough to have their most advanced brood nearly ready to emerge, they may be considerably weaker than those left in until later. As the weather cannot be foretold, my practice in

this intermediate condition has usually been to set out a part of the colonies quite early, and to leave the rest until the prospects for settled warm weather are well assured.

There is another matter on which there is a difference of opinion; namely, whether it makes any difference whether each colony is set upon the same stand it occupied the previous season. Where lack of room requires that the hives be set close together, and for any reason the colonies must all be set out on the same day, I think it is better to set each colony on its old stand, then there is less danger of mixing.

In bringing the colony from the cellar, a wet cloth should be thrown over the entrance, thereby causing the bees to remain in the hive till it is carried outside the cellar door. Then the cloth should be rolled back at one end of the entrance to make room for the nozzle of the smoker, and enough smoke is blown in to cause the bees to run away with a humming sound. The hive should now be carried to the desired place, two or three more puffs of smoke blown in at the opposite end of the entrance, and the hive set on the stand it is to occupy. In this way no bees come out and get lost as they are carried from the cellar; they come out as slowly as if they had been wintered on their summer stand, and the location is as carefully marked as if they had never been carried into the cellar. Cotton cloth, folded to the right size to tuck in at the entrance, is very satisfactory when bees are to be moved only short distances. The cloth should be kept wet, or as damp as possible, and not drip. I have found this plan far preferable to blocks of any kind.

After the bees have had their cleansing flight the entrance should be contracted to suit the size of the colonies, giving about two inches in length to the weaker ones, and five for the strongest. A fairly still day is preferable for setting bees out of the cellar; but a moderate breeze does no special harm. In the case of an out-apiary, going ahead even with quite stiff wind is generally preferable to waiting for a better day.

While it is not often too warm for setting out the bees in early spring, care must be used if the temperature is from 75 to 80 degrees in the shade, for those first set out will have had their cleansing flight and rush in as robbers on those that have just commenced to fly, and thus robbing will get

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under way before those set out later become prepared to protect themselves against a general onslaught. On such days it is best to wait till 3 or 4 o'clock in the afternoon, then work as rapidly as possible.

Borodino, N. Y. G. M. DOOLITTLE.



Letters from a Beekeeper's Wife

"The Honey House," April 1, 1917.

Dear Sis:

With forsythia and violets blooming, frogs croaking and Rob's hammer sounding, I really believe that spring has come. The hammering means that we (Rob doing the work and I the encouraging) are putting up the honey-house we have talked about for so long. I am delighted to think that at last I'll be rid of the big tank from the back of the stove and all the sticky mess of bottling in the kitchen. Every bit of the preparation and care of honey is to be done in the honey-house. There are to be two big tanks to hold it all and a power extractor, and we are putting in all the little labor-saving devices that Rob had put in the kitchen for me after your visit. We worked over the plans just as you showed us how for the kitchen, and I believe that we are almost, if not quite, crazy now on the subject of economy of motion.

That's our slogan, and the children have taken it up and watch everything we do to see if they can't catch us "wasting muscle and nerve energy." The girls have a system of marks and keep count to see if the one whose turn it is has to make more than one trip to the kitchen to carry out plates and bring in dessert.

When it came to planning the honey-house, Rob and I went thru every motion from the time the frames of honey are carried into the house until the cases of bottles are carried out, to see that every arrangement of tools, tables, and appliances will make for economy of motion and nervous force. Do I talk like your much quoted efficiency expert? To begin with the door, it swings both ways so that one can go in and out with hands full, and the work begins just inside the door. From there on it goes on right around the room, the tables at the proper height, tools for each process kept at the place where that work is to be done, etc., and it all ends up at the other side of the door, where there is space to stack the crates of bottled honey. To have all the work on one floor has necessitated a

little extra outlay for a honey-pump, to pump the honey from the extractor into the tanks, but the one-floor plan simplifies things for us and saves many steps.

For instance, a tray on wheels carries a super full of frames to the capping tanks. There we'll stand ready to take out a frame with both hands. Then one end bar rests on a nail for the purpose on a bar of the capping tank, thus freeing the right hand, which will reach for the steam uncapping-knife right under the hand on the edge of the tank. The cappings will fall into the tank where they are to drain, the knife is replaced and the frame is placed on a rack where Rob can reach it easily. We have not put in a capping-melter yet. Rob will work at another part of the capping-tank. When enough combs are uncapped, he will put them into the extractor, which is beside him. Doesn't it sound fascinating? We are eager to see how much time we'll save, and to see whether it all works out as well in practice as it does on paper. Of course we probably have made some mistakes, but we hope no serious ones.

One more thing that Rob thought of was a fan which goes with the power that ruins the extractor. That will be a wonderful help. I don't mind being wet with perspiration alone, nor sticky all over with honey alone—but I abominate the combination!

I long to be outdoors hammering too, instead of housecleaning, but this is my job and I must get to it instead of writing at such length to my sister. There is so much of woman's work that I don't enjoy and so much of man's that I do, that I am glad it is no longer taken for granted that women shall do housework and nothing else. "Woman's sphere" is the whole world now if she wants it. I don't believe she does want it all tho—anti-suffragists to the contrary. I should hate to think that the time would ever come when she would be the dominant sex, as is the case in the beehive. If the time ever did come, thousands of years hence, that all men were fat and useless and lazy (there are plenty of such drones now, goodness knows!) and all the women but one did the entire work of the country, made the laws and saw that they were carried out, do you suppose that these stern females would be as relentless as the worker bees? At the approach of winter, would they starve their husbands and carry part of the children outdoors to freeze, for fear there would not be enough bread to go round? I shudder to think of it! Would

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they keep the mother of all the children indoors working with never a respite until she grew old and feeble, and then would they kill her? I fly from such horrible thoughts to my attic which must be cleaned today. I wonder if you are housecleaning. Give the baby a squeeze from his

Aunt Mary.

The San Joaquin Valley Again

In the February number, pages 108-110, we read an article on the San Joaquin Valley—the enormous waste and the great opportunity for progressive beekeepers. It is very evident from the general character of the statements contained in this article that they were written by what the writer herself terms a “new comer,” or at least by a person who does not understand the actual conditions here. Having had twenty years’ experience as a beekeeper in the central part of the San Joaquin Valley, and being for several years Inspector of Apiaries of Kings County, I believe I am fully qualified to write of actual conditions.

Articles regarding California often remind me of the reporter who interviewed me while in the East selling a carload of honey. I had just given his paper a liberal

advertisement; and to show their appreciation (or, perhaps, to fill up space) he wrote up a news item under this head—“Gets Rich in Bee Business; Former Local Man has a Thousand Colonies; left here Twenty Years Ago; takes Bees from one Orange Grove to another in California.” Sounds very wonderful, doesn’t it? As a matter of fact I have more than a thousand colonies, but lack a great deal of being rich. Honey was selling at that time for $3\frac{1}{4}$ to $3\frac{1}{2}$ cents in California, and it was to break even with the world that I was selling a car of honey in the East at retail prices.

What is waste? We are told that it is very noticeable in California where peaches, grapes, and many other things are fed to the hogs. Perhaps if our friend had investigated the prices of grapes at that particular time and place she would have found that they were worth more per pound as hog feed than they could be sold for on the open market; or they might have been a little too ripe to stand the shipment to eastern markets. Climatic conditions sometimes have much to do with the way fruit is handled. Last year many tons of grapes were ruined on the drying-trays by rains (grapes dried in the sun are raisins). Much of this fruit was hauled to wineries before it was entirely spoiled; but many men have

scruples when it comes to furnishing grapes for this purpose, and perhaps the next best thing financially was to feed them to the hogs. Persons familiar with the fresh-fruit situation in California know and understand these things. The same is true in other lines. Watermelons, pumpkins, piemelons, and squash all make good stock feed. Horrible, isn’t it, to feed great big juicy watermelons to stock. The land in most sections of the valley will produce from 50 to 100 tons of pumpkins and squash per acre, and sell as stock food for from \$1.00 to \$2.00 per ton. Is this return so bad



Some California wax that was not wasted.

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as to be called wasted when sold or used as stock food? But let us return to the bees.

In many sections of this great valley, alfalfa is king, and there are great herds of dairy cattle; but the dairy herd is the enemy of the beekeeper, for the alfalfa is cut before the bloom, or at least before the bees have much of a chance to work. Large dairy herds as a rule do not go hand in hand with fence corners or waste places where alfalfa is allowed to go to seed, but it does mean section after section of alfalfa with an occasional fence. In these sections there is little or no wild feed. The one chance for a beekeeper is alfalfa that is being raised for seed, and the uncultivated places where wild feed such as melilotus and alkali weed are abundant.

In the fruit sections we have thousands of trees of all varieties, and many thousands of grapevines, the bloom of which yields no surplus. It is true that much honey could be gathered from the fruit-trees; but the bloom lasts only a short time, so it serves only to build up the colony, and then it is either feed or move; but even with these drawbacks you will find thousands of colonies of bees here and there thruout the valley in likely locations. Nowhere in the valley have I heard a cry from fruit-growers that there are too few bees for proper pollination; in fact, not many years ago the pear-growers of this district threatened to legislate against them.

This leaves us for the honey surplus; then the oranges of the eastern foothill region, the wild feed of the uncultivated sections, combined with the alfalfa on the floor of the valley, and the sage and wild buckwheat of the western foothills. We get some honey and pollen from the fruit bloom, and then must feed until the alfalfa and wild feed comes on or move to the oranges on the east, or to the sage and buckwheat on the west, or our bees will naturally suffer.

MIGRATORY BEEKEEPING.

What does this moving mean? I will give a little of my experience. My home is located about forty miles from the oranges and about sixty to the nearest sage. You will note that the floor of the valley is about 100 miles across at this point. The location



P. H. Bales, Hanford, Cal., with his wife and daughter and an old friend from the East. Mr. Bales is a beekeeper having more than a thousand colonies.

in the sage that I moved to last year was 76 miles, and in returning to the alfalfa flow the move was 83 miles. It is not such a task to move early in the season to the sage; but just think of moving 83 miles about the first of July, your bees just from a honey-flow, and the average daily temperature somewhere between 90 and 100 degrees in the shade! I have a motor truck and move 56 colonies in two-story hives, at one load. I had very good success in moving the 83 miles. One man and myself would start with a load as early in the evening as we could possibly get away, and unload them on the new location before daylight. We made one trip every night for five nights in succession—a distance of 166 miles a day. Does this appeal to any one as a woman's work?

Beekeeping as a side line is a curse to the industry. This great state is one of special-

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About that Change from Comb to Extracted

After reading the editorial on page 91 I took it upon myself to do a little investigation among beekeeping acquaintances. Twenty-two letters written to comb-honey producers brought sixteen answers saying they would change in whole or in part to extracted. Two did not reply, while four will not change, but try to produce more comb. Now, if this indicates anything like a fair proportion of changes likely to occur it seems to me there is a slump ahead for extracted honey. Of these beekeepers, not one lives west of the Mississippi River. It is my opinion that no comb-honey producer east of the Mississippi will gain anything by changing to extracted. I have produced extracted exclusively for the past seven years; but having 200 comb-honey supers I will use them this year.

The second point indicates that the market is overloaded with comb honey, and prices easy. Would it not be proper to call it brick honey, for that is getting to be the name used by those who "got stuck" on immense quantities of this so-called *western* honey. I believe the editor has for years advised beekeepers to get their comb honey on the market *early*. Had our western brothers paid heed to this advice their comb would have been consumed long ago, and before it changed to building material; but, no—they must hold for a higher price, not letting it go when wanted, then dump it on to our poor innocent eastern buyers, some of whom have been badly singed. No doubt some of our western brothers are chuckling because able to put one over on the eastern dealers; but surely it will prove a boom-crang. When visiting a dealer recently I remarked about a nice pile of comb honey.

"Yes," he said; "sells well; most of it has been sold several times."

He meant that it *had* been sold as stated but he well knew it would be returned. He commented on the fact that they are getting to raising a great many beets out west. Ten cases of such stock sold by a retailer might lose him 240 customers, and at best could not do otherwise than give his customers a bad idea as to the quality of goods he handled.

If the surmises are correct in this matter, *here* is another body blow to the extracted-honey producer. Any one can sell good comb honey, but not so extracted. My personal experience required four years

to build up a trade worthy the name. The backlotter will soon become discouraged, and finally close out his extracted at the best offer he can get; and be assured this will have a tendency to lower prices obtained by those who *have* a trade established.

The remarks regarding potatoes reminds me of an incident occurring many years ago. Potatoes sold as low as 12½ cts. a bushel, and thousands were never sold at all. The growers became discouraged and disgusted. That spring my grandfather, who had the name of being a shrewd, close-fisted old fellow (who would skin a flea for its hide) kept his own counsel and planted 60 acres. When others discovered what he was about it was too late for them to plant. He had a good crop, and sold none for less than 75 cts., and many at 80 and 85, making him more clean money than he ever made in one year before. My opinion is that it is a mistake for anybody, properly prepared to produce comb, to change—decidedly so for any Michigan or other beekeeper who can produce good comb honey. Such stock will always bring more than extracted per pound. I can name plenty of merchants who will not carry extracted, and who, if they have any of this "western building material" in stock, have become so disgusted they will handle neither extracted nor comb.

Formerly I have bought hundreds of empty cases (two cans in a case) from the National Biscuit Co. at 15 to 20 cts. per case. I believe they once used many cans of honey. Now I am informed they are using a much cheaper substitute. If all other bakers use the same, this of itself would have a very depressing effect on the price of extracted honey. It would seem a word to the wise should be sufficient; but will it? No. Many will make the change who really do not know why.

Birmingham, Mich. A. W. SMITH.

Safe Methods of Shipping Comb Honey

Comb honey is one of the hardest commodities to ship, especially in small lots. We often have a customer at a distance who would like a case or two of nice comb honey; but the fact that it is almost impossible to get it thru without considerable loss has been discouraging in shipping such small orders.

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As I am in the poultry business I have a quantity of egg-cases on hand at all times; and during the honey season eggs, being scarce so that my customers can not ordinarily have a whole case anyway, I push the sale of honey along with the eggs. I pack 28 sections in one side of a regular 30-dozen egg-crate. The box then contains 15 dozen eggs and 28 sections of honey. Or, if desired, honey can be packed on both sides, making 56 sections to a case. Sometimes I pack one side with comb honey, and the other with pails of extracted honey; or honey on one side and fruit on the other, according to the specifications given in order.

of the case with excelsior, making sure to ram it down very hard—the harder the better, so that there will be no opportunity for the sections to chuck around. There must always be enough cardboard between the ends of the sections and the excelsior so the sections will not be damaged in packing. The sides are packed in the same way.

On top of the sections there is about two inches of space, therefore I lay on a cardboard after having folded down the ends which extend above the edge of the sections, then fill up the case with excelsior, making sure that this comes a little above the top of the case, so that, when the cover is nailed



Geo. Dodds, Cambridge, N. Y., the man who ships honey and eggs in the same crate.

When packing the honey I take all the fillers and cardboards out of the case, leaving the excelsior in the bottom, and on top of this put a cardboard. Then I begin putting the honey in the case, close against the division-board. Two rows will go side by side, leaving about an inch of space all around. Seven sections will go in each row. On top of the first layer I put a heavy paper or cardboard cut the exact size of the two rows below, and put another tier on top. I put two or more cardboards against the ends of the sections and pack the space between these and the side

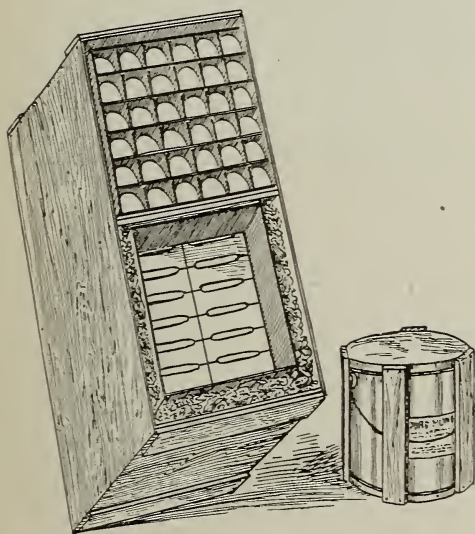
on, there can be no looseness or chance for the sections to chuck up and down.

I have used this plan of shipping for four years, having shipped comb honey as far as Tennessee, and the report is always the same—that the honey is received in fine condition. The secret of success lies in the thoro packing and in the use of the egg-crates, which will always be right side up and handled with care. An egg-case usually receives better treatment than ordinary express. Honey weighs just about the same as eggs, so the case will be well balanced, even tho eggs are on one side and honey on

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the other. If necessary, the case may be cut in two for shipping only 28 sections alone, just as we do when we ship 15 dozen eggs.

Honey may be sent in this way in winter as well as in summer; for if it is thoroly warmed when it starts it will go thru all night, since express is kept reasonably warm, and not subject to freezing temperature. Clean cases and cardboard should always be used, and the effect will be just as good as tho a regular comb-honey shipping-case were used with a glass front.



The illustration also shows my method of crating five and ten pound pails that are sent by parcel post. The octagon heads are made just a trifle larger than the diameter of the pail. Then slats of $\frac{3}{8}$ material are nailed on, four or eight sides, according to the distance sent. I have sent out many pails with only four slats as shown in the illustration, and have never had a complaint. However, I usually put the slats on eight sides when shipping by express or by parcel post further than the second zone. If pine or basswood lumber is used the five-pound pail will weigh crated only $6\frac{1}{2}$ pounds, which goes as seven pounds, and costs seven cents in the second zone.

Ten-pound pails weigh twelve pounds crated, and cost sixteen cents in the second zone. With slats on eight sides the package usually weighs another pound and costs a cent more postage.

Many times I have an order for two pails

of the same size. These I crate together by making the heads long enough for both.

If the material is dressed a little it makes a better appearance, and appearances count for a good deal in the bee business.

Cambridge, N. Y. GEORGE DODDS.

Store-Box Winter-Cases

I now have twenty-seven colonies packed in leaves for winter. My plan is inexpensive, and I believe it is very satisfactory. From empty store-boxes I made for each hive two sides of a winter case, 14 by 26 inches, also two ends, 14 by 20 inches. These I nailed together without top or bottom, and tacked waterproof paper clear around. On setting such a case over the hive there is a space on each side and end of three inches, and four inches on top. To prevent the leaves falling out at the bottom I nailed strips of lath across the ends of the case and laid other strips on top of them across the sides. Two pieces of lath the proper length laid side by side just fill the space nicely and allow the case to rest upon the edges of the bottom-board in front, and on a support at the back consisting of a couple of nails driven into the end of the bottom-board.

I packed the leaves between the outer case and hive, and over the top of the hive; then for a cover I used heavy waterproof paper held on by strips of lath tacked on to the ends and sides.

Not counting my own labor, the cost for the twenty-seven hives did not exceed \$3.00.

Wauseon, Ohio. DR. A. P. BETTS.

Great Strides in Tennessee

Glancing over the Directory of Country Life Officials in Tennessee, I am greatly impressed with the great strides this entire section has made in recent years along agricultural lines. Utterly devastated and impoverished fifty-two years ago, it took a long hard pull under new strange economic conditions to get somewhat "on its feet" again; but now see. Practically abreast of the states of other sections that had no such tragic experience to recover from, we have a Commissioner of Agriculture who counts among his staff a State Veterinarian, a State Chemist, a State Entomologist, Feed and Fertilizer Inspectors, and a State Apiary Inspector. There are specialists in

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One evidence of the advancement of apiculture in Tennessee.

agronomy, animal husbandry, dairy husbandry, poultry husbandry, market and rural organization, home economics, home sanitation, and beekeeping. In addition to other courses in agriculture, there is a special course in beekeeping at our State University. In forty-four counties of Tennessee there are County Demonstration Agents working under three district agents.

The physical advantages of this section for apiculture have long been recognized. As Prof. G. M. Bentley, the State Entomologist, says of Tennessee, in one of his bulletins, "The varied flora, the abundant rainfall, the number of growing days, and the mild winters are all important factors pointing toward success to him who will keep strong bees of the right kind in a modern way." And that is the kind of bees the beekeepers of this state are learning to keep, and the way they are learning to keep them.

Here in Tennessee, too, we have, father and son, one of the largest queen-rearing establishments in the world (when quile by ourselves we quietly call it *the* largest), and in Georgia is one of the largest honey-producers in the country, with a string of some fifty or more apiaries. When we thus take stock of our advantages, and our progress to date, we are inspired to give a long pull and a strong pull and a pull all together toward wider enlightenment and further progress.

These conditions hold also in the adjoining states. There are tomato clubs, poultry clubs, corn clubs, pig clubs, and now there are bee clubs too, all over this southeast. Notice the picture of the parade in Winston-Salem, North Carolina, with the bee club right in line. Forsythe County, North Carolina, by the way, is a sure enough live county; and if by their counties ye shall know them, then is County Farm Demonstrator Bruce Anderson a live demonstrator. These particular combined agricultural clubs have a rousing song, with a stanza for each club, including the bee club, of course, and then they all come in together on a zipping chorus.

Nashville, Tenn.

GRACE ALLEN.



The Ira D. Bartlett Capping-melter

Among the many first-class beekeepers in Michigan is Ira D. Bartlett, of East Jordan. During the winter of 1915 I met Mr. Bartlett at the Grand Rapids convention, and it did not take me very long to come to the conclusion that he had something of value in connection with a capping-melter. From all the information that I have been able to glean in connection with these machines I have supposed, perhaps wrongly, that when the honey is uncapped and the cappings dropped into the melter, the honey is not of quite as good flavor as if it had not been

FROM THE FIELD OF EXPERIENCE

heated. In fact, I was well nigh convinced that no machine could be built which would deliver the goods of proper quality.

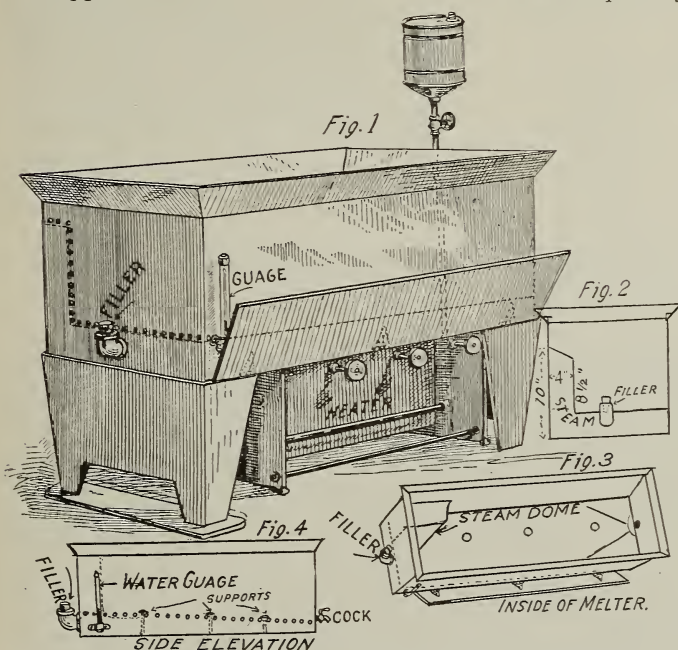
Mr. Bartlett very kindly gave me the specifications necessary to build a machine, and he also sent me a sample of the honey after leaving the melter. Before going into a description of the melter let me say that those of us who tested the samples came to the conclusion that there was no difference in flavor, but that the honey which had passed thru the melter possessed a little better body—no doubt due to the heat applied to it.

over, we generated sufficient steam from the water in the tank, below the bottom upon which the cappings are deposited, so that two steam honey-knives could be operated from that source. Let me caution any one undertaking this kind of work that, if the only outlet for the steam is thru a steam-pipe and honey-knife, the beekeeper should be very careful not to blow up the machine.

In the accompanying illustrations the only part which requires any explanation is the filler. This is merely the opening thru which the water is put in. The gauge is to show the quantity of water the machine contains.

In Fig. 2 a compartment is shown into which the steam rises, and which has attached to it an outlet for the same. We use this steam for the steam honey-knife.

Fig. 3 gives another view of the melter. All parts of the bottom slope toward the outlet; and as the mass slides forward on the heated bottom it passes out in a melted condition; then the wax and honey are separated in the usual way—viz., by means of a boiler with a partition in it, all the liquid running into the first part and then under a partition which reaches almost to the bottom of the boiler; this partition keeps the



The Ira D. Bartlett capping-melter as used by R. F. Holtermann.

HOW THE QUALITY IS PRESERVED.

Right here it is well to say that this fine quality of honey can be obtained only by one person uncapping at a time and seeing that the melting and melted wax slides down the incline and passes out of the opening. If one operator uncaps in front of another the freshly deposited cappings dam back the melted wax and heated honey, and scorching takes place. Then the melted wax has to be liberated with a stick by shoving the solid matter to one side; but even at that the quality of the honey has no material influence if all are mixed together in the large tank.

I have no hesitation in pronouncing the machine first-class in every respect. More-

wax in the larger compartment.

The board at the side of the tank, attached by three hinges, is to prevent danger from fire for the worker, and it is raised to the position in the engraving when the fire underneath needs attention.

R. F. HOLTERMANN.

Brantford, Ont., Canada.

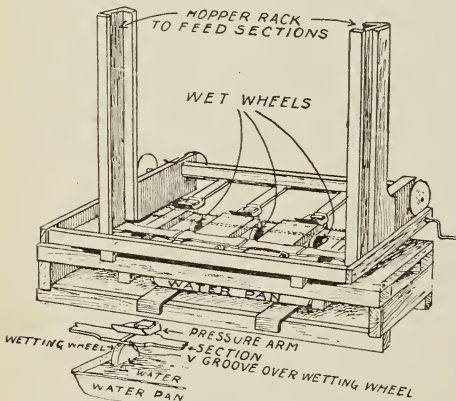
My bees are wintering out of doors in long-row tenement cases packed with dry leaves, with flax-board mats over the brood-frames. Twelve inches of leaves are placed on top of the mats. The space at the ends and sides of the hives is four inches.

Elroy, Wis., Dec. 16. CHAS. SHELDON.

FROM THE FIELD OF EXPERIENCE

A Machine for Dampening Sections

The illustration shows my section-moistener. The section lies in the bottom of the "hopper," which holds about 100. When the little crank, shown at the right, is turned, the sections are pushed, one at a time, over the three small wheels the lower sides of which are immersed in a small pan of water. The wheels have a rim or "tire" of cloth, felt, or some other absorbent material which will carry plenty of water. The little spring paddles hold the sections down on the wheels sufficiently to cause them to turn as the sections are pushed over



them, and thus carry up the water and apply it to the section opposite the V groove. Ordinarily, cold water answers; but if the sections are very dry a lamp-stove under the pan will keep the water hot and do a more thoro job. Of course, in placing the sections in the hopper the operator must notice that they all lie grooved side up. This is quite easy, as I notice that the sections usually all lie one way in the boxes. After being placed in the hopper the 100 sections can be dampened in one-half to three-fourths of a minute. However, I notice that the young man who usually folds my sections has got in the habit of seating himself in front of the folder with the moistener on the table within easy reach, wetting 25 or 30 sections, and folding them before wetting another batch, as he says they generally fold better when freshly moistened. By adjusting one end of the hopper, and the wheels, which are fastened on the shaft with set-screws, sections of any size could be accommodated.

Almont, Mich.

ARTHUR RATTRAY.

Coercion vs. Education

On page 1118, Dec. 1, Wesley Foster takes me to task for a remark which I made to the editor, which the editor quoted in an editorial in the June 15th issue.

Mr. Foster did not state what the quotation was. Here is the essential part:

"I have come to the conclusion that we need in Ohio and everywhere else a campaign of education. Foul brood is scattered all over the state. Many beekeepers are careless and indifferent, and so, of course, they eliminate themselves in time, but they leave behind them sources of infection. There are beekeepers of another class who are inclined to defy authority if the strong arm of the law is brought to bear to compel them to clean up. In that case they may or may not make trouble by scattering the disease out of pure revenge."

This remark was made in the course of a general conversation which I had with the editor in his office. I do not believe that all inspection work should be dropped, nor that we should work only along educational lines; as a matter of fact I support nearly all Mr. Foster said except that part of his article in which he places me in a wrong position.

This is a subject on which there are all kinds of opinions. I believe conditions must be much different in Colorado than in our section, for Mr. Foster says, "Stock inspection, dairy inspection, fruit inspection, have been carried on so thoroughly that the farmers are not opposed to inspection work." On the opposite page Mr. Scott, of Indiana, in an article on educating the careless beekeeper, says, "But as a rule the man with a few colonies resents inspection and regards the procedure as an intrusion on his rights."

I have visited hundreds of beekeepers when on inspection work, and I believe Mr. Scott is more nearly right. The beekeeper may not object much; but nevertheless he resents the work. But, as a rule, after the inspector has convinced the beekeeper of his good intentions future visits are welcomed.

I feel certain that the great value of inspection work is along educational lines. It seems that the man who is doing the teaching must have the power to force the beekeeper to accept the education. We in Ohio are working much along educational lines. Whenever possible, when doing work in a district we get all the beekeepers together and give an actual demonstration of the treatment of disease, transferring, etc.

For years we have had educational exhibits at our State Fair, and at as many

FROM THE FIELD OF EXPERIENCE

county fairs as we could attend. This last season we started with the beginning of the fairs in August, and attended fairs each week until the end in November. At the State Fair, Inspector D. H. Morris and myself gave a continuous performance in live-bee handling. We started about 8 A. M. each morning, and handled those bees continuously all day. As was to be expected, we had a crowd all day. We did not attempt to give a regular talk, but tried to answer what questions were asked, frequently explaining that we were there for educational purposes.

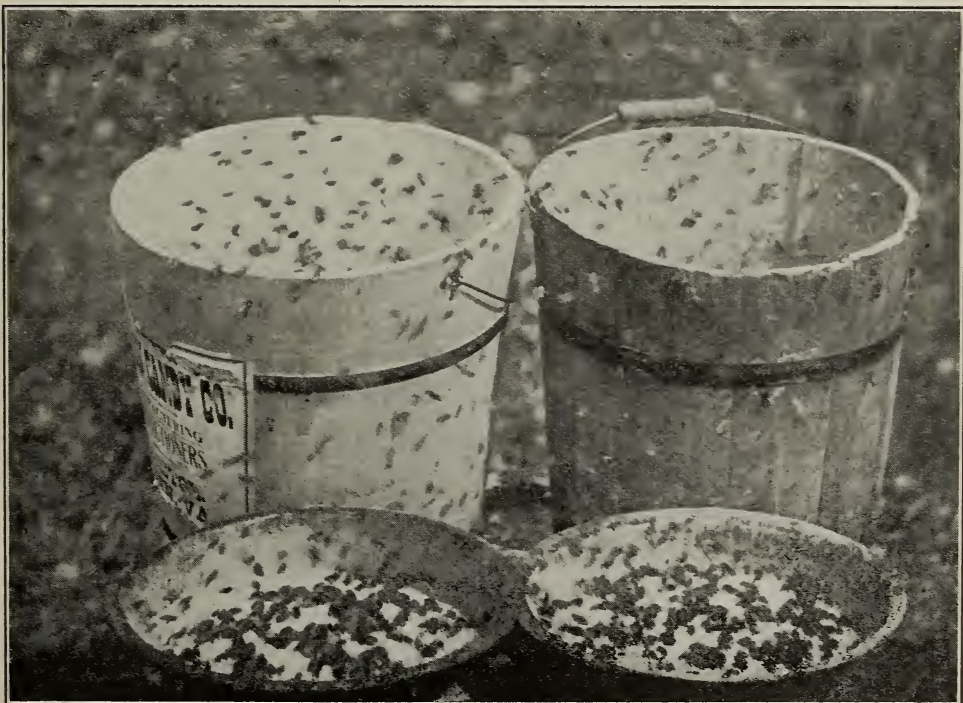
We were in doubt as to whether we could make one colony hold out the entire week. Editor Root told us some time before that he would not advise us to use one colony too long, because the bees would "get on to our game." Well, he was right. The last of the week we had to play pretty carefully for the bees were get-

ting well acquainted with the proceedings. Our exhibits at the county fairs consisted of observation hives and all the smaller articles used in bee culture, including combs to demonstrate the value of the use of foundation. We also carried a large number of photographs showing good and bad methods. The state of Ohio spent thousands of dollars doing educational work at county fairs.

Our assessors at the last appraisal listed over 700,000 colonies, and no one can tell how many they missed. It is rare when we go thru a county one year that we are able to get back in that county the next season; and we all know that, if one has much disease, it is very seldom that one cleaning-up will get all the infection. The beekeeper must be taught so that he will be able to do his own inspection work.

A. C. AMES.

Peninsula, Ohio.



Bees working on a substitute for pollen.—Photographed by D. M. Bryant, Ethelfelts, Va.

A. I. ROOT, do you want to make a lot of us mad by telling about that controversy with the express people, p. 216, and then not giving us the outcome?

C. STIMSON, p. 61, gives a valuable item as to the value of minerals in honey. Beekeepers need stirring up about it, and then it should get into all periodicals aside from bee journals.

SOMETIMES you have one or more combs heavy with pollen, and hardly know what is the best disposal. Try distributing them in your extracting-supers and see how nicely the pollen will gradually disappear.

"AFTER two weeks it" [the nurse-bee] "takes up the duties of a regular field-bee," p. 208. Is that "two weeks" given as a round number without giving the exact number of days, or has it been concluded that the orthodox "16 days" is too long?

MARY says, p. 116, that the aimless discussion in women's clubs can't compare with a beekeepers' convention. Well, Mary, do you women have subjects so full of interesting by-paths, ever alluring from the main track? Anyway, I'd like to hear a convention of beekeepers, all women, if they can talk as well as you, that is, provided you talk as interestingly as you write.

G. M. DOOLITTLE, p. 116, says a rent in a veil pinned and puckered into a protuberance will be attacked by bees because fuzzy. Yes, bees dislike fuzzy things; but that protuberance is also blacker than the rest of the veil, as you will see in a photo of it. I've seen bees for hours following the glass head of a hat-pin on my assistant. Was it because the glass ball was black or fuzzy?

F. WHITESIDE says that for 20 years he has kept his bees successfully, packed in clamps containing 8 hives each, 4 hives in a close row, and another row, back to back. They are packed in dry sawdust, cedar or pine, all the year round. To handle the inside hives he must stand in front of the entrance, but he likes it better than to have fewer hives together. It certainly seems less labor.

MRS. ALLEN, p. 195, reports unusually severe freezing, and says: "An examination on January 30, when the bees had a good flight, showed less brood in packed hives than in unpacked." That might be because greater heat was generated by

STRAY STRAWS

Dr. C. C. Miller

the bees in the center of the brood-nest in the unpacked hives, the greater generation of heat being due to the greater cold surrounding the

brood-nest; for the greater the cold surrounding the brood-nest the more the bees stir up the fire inside, just as in our houses the greater the cold the bigger fires we keep.

"DURING early spring," says J. E. Crane, p. 126, "1 $\frac{3}{8}$ might be best, but later 1 $\frac{1}{2}$ is quite as good or even better," for spacing. Early spring is the time when greatest heat is needed. Isn't it just possible that 1 $\frac{3}{8}$ is too close to allow enough bees to keep up the heat? There's a nut for Dr. Phillips to crack.

"A COLONY of bees can produce only about half as much comb honey as they could of extracted," p. 206. The general teaching has been two-thirds as much comb as extracted, and I think the "half-as-much" idea comes from Canada. I'm more inclined to the old belief, altho I'd rather believe the new; but is there not some way that we can have some definite knowledge about it? The puzzle might be referred to a certain Dr. Phillips.

P. C. CHADWICK, p. 194, your enterprising 13-hour search did not prove that bees mix pollen on the same trip. Neither did it prove that they do not. I saw one bee do the trick. (Didn't take me 13 minutes.) But I think that was the only time in my life, and I suspect it is a very rare occurrence. I doubt that a bee ever mixes two kinds of pollen if *either* of the plants is in considerable quantity. But in what we call a dearth a bee is so anxious for nectar that it may visit plants of different kinds on the same trip.

R. F. HOLTERMANN, page 105, says: "If the beekeeper is isolated from other bees so that there is a range of, say, two miles in every direction, and if he is in a good locality, I doubt whether it pays to split up an apiary of 200 colonies." Like enough he's right, but I wish we could *know*. Even if he's right, there remains the question whether there might not be more money in 190 or some smaller number. Remember, too, that, to give him control of "two miles in every direction," there must be no bees within four miles. Such places "in a good locality"—I wonder if there's one within a thousand miles of here.

DOES the delicate delightful aroma of foundation come from the wax, or is it the result of the wax first coming in contact with honey and the brood-chamber, and absorbing the odor from them?

We occasionally have calls for dark honey, but not one year in twenty do we have any to supply the demand.

"Extracting too closely is worse than disease," says P. C. Chadwick, page 51, and who shall say he is not right?

I can not tell how much I should like to attend those magnificent conventions in the West; but they are too far away for one of my years.

It takes a bale of cotton and a barrel of alcohol to fire one of those big 16-inch guns, we are told. Alcohol is at home when engaged in destroying human life.

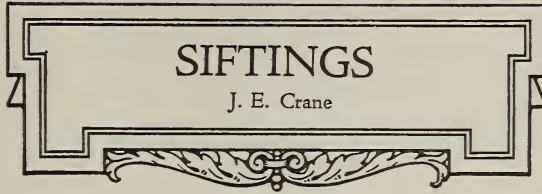
There appears to be a shortage this year of extracted honey; but the slow freights are quite as great a bother here in the East. Glass shipped us over five weeks ago from Ohio has not yet arrived.

One of the things we learn from the hive in that mammoth greenhouse is the value of meal for bees that are without pollen, page 200, March. We learn also that, while meal is good and helpful, pollen is better where it can be furnished.

Somehow it makes one feel better to read P. C. Chadwick's statement that his bees go three miles and more for orange honey than to be told that bees will starve unless flowers are within a mile of an apiary. Page 125, February.

It is March 2—sunny but cold. Our bees have not had a chance to fly to any extent for nearly four months, and I have just been out and lifted the cushions from three or four hives and find them strong and warm. It may be another month before they can fly.

I like the idea of wintering in two-story Langstroth hives. One great difficulty with all frame hives has been to get bees to move



across the frames during cold weather. With a two-story hive bees can cluster in the center and move across combs, above the

lower ones and below the upper ones, without difficulty, making an ideal brood-nest.

With expert beekeepers in Tennessee and North Carolina advocating double-walled hives we may feel quite sure there can be no mistake about our using them here in the North. The warmer that bees can be made out of doors here, the better—little danger of overdoing it.

On page 171 the editor inquires as to the honey yield of alfalfa here in the East. I have seen bees working on it near here very freely in two different seasons and I am hoping that, when the ground is well filled with bacteria, and properly limed, we shall get a good deal of honey from it.

E. G. Carr, foul-brood inspector for New Jersey, makes it a part of his business as inspector to "inspect the man" as well as the bees, page 91, February—a capital idea. If the inspector could have strong men for beekeepers he would soon have strong colonies, and foul brood would vanish like dew before the sun.

E. G. Baldwin informs us, page 50, that along the east coast of Florida the beekeepers were getting a super or more per colony from basswood. Now, I say that isn't fair. It seems to me they ought to be satisfied with orange, palmetto, tupelo, pennyroyal, partridge pea, and the rest, and leave clover and basswood for us here in the North.

On page 1115, Dec. 1, Geo. H. Rea tells how to solve our greatest beekeeping problem. It is good; and if the advice given for solving the greatest beekeeping problem is followed it will not only solve the problem of the ignorant and careless beekeepers, but some other problems of even more importance. It seems strange that mankind cannot learn that the exercise of kindness and unselfish helpfulness is the best way to deal with the problems of evil that are all about us. I believe Mr. Rea's appointment as a government expert for the South is a wise choice.

HOW do you like the title of the page? The managing editor christened it after my first contribution was turned in. I like it. The pronoun gives me a chance to shift part of the responsibility to the shoulders of the readers—the feminine shoulders, I mean.

Permit me a few words as to the purpose of "Our" page. It is my aim to make it helpful in the selection and preparation of seasonable foods, in the planning of reasonably well-balanced and attractive menus; to encourage economy of money spent for foods, and time spent in their preparation; and, last, to promote the use of honey, not as an occasional luxury, but as a daily necessity on our tables.

How I wish GLEANINGS had a nice fashionable page, say ten by fourteen inches! When we get well under way the editor is going to have his troubles keeping us from trespassing all over the next page. Honestly, there is hardly a more important subject for wives and mothers to study than the selection and cooking of foods. Dr. Wiley has said, "With a good cook in every household, and preferably not a hired one, the divorce mills of the country might as well shut up; they would have nothing more to do." He has also said that, while there is no country in the world which has so much good food in proportion to its population, there are few countries where so large a proportion of it is spoiled in the kitchen before it reaches the table. I prophesy that this severe criticism of American housewives will not be true ten or fifteen years from now. Domestic science, as taught in the public schools, and the increasing interest in it, shown by the number of excellent magazines devoted to the subject, are lifting household management to a science, and cooking to an art.

In these days of soaring food prices, menu planning is very important. Our children need protein, fats, carbohydrates, ash, and bulk in their food just as much as ever; but it takes most careful planning and study of food values to accomplish a balanced ration, and have sufficient left out of the average income for other living expenses.

When one Puerden is interested in a subject the whole family are sure to know about it sooner or later, generally immediately. Our big boy is very much interest-

OUR FOOD PAGE

Stancy Puerden

ed in chemistry; our small boy is studying agriculture; the man of the house is devoted to promoting the sale of honey, and the writer is

reading every thing she can find on food values. You would be surprised to see how nearly these subjects are related, and how much we can help each other. When one has children of school age there is no excuse for rust accumulating on one's mental machinery.

This month I am giving you a luncheon or dinner menu which has been tested by the Puerden family and met with unanimous approval. The stew is easy to prepare, requires little time for cooking, and is an appetizing way of using left-over bits of meat. The salad is simple, as it should be when the rest of the meal is hearty, and it adds variety. The muffins take the place of bread, and, with the honey, supply all the dessert necessary. You will notice the muffin recipe calls for no sugar or honey. Here is where I differ with Mr. W. L. Porter. In his excellent paper, as reported on page 212, he said, "A tablespoonful of honey in the muffins for breakfast decidedly improves them." Don't you believe it. Bake your muffins without any sweet in them, and let the natural and delicious flavor of the grain be developed. Then serve honey with them; and instead of a tablespoonful, half a pound will disappear. Just try it.

In the following recipes level measurements were used.

DINNER.

Whole-meal stew; lettuce with French dressing; corn-meal muffins; comb honey; cheese.

WHOLE MEAL STEW.

Half a cup salt pork or bacon cut fine; 2 cups cold meat cut small; 2 cups onions cut small; 3 cups sliced cold boiled potatoes; 2 cups canned corn; 1 cup canned tomatoes; 1 teaspoonful honey; 1 teaspoonful Worcestershire sauce; salt to taste.

Put a layer of the pork or bacon in the pot, then a layer of any kind of cold lean meat; next a layer of onions, then a layer of potatoes, and on top a layer of corn. Simmer slowly about an hour, after adding hot water or stock, and then turn in the tomatoes sweetened slightly with the honey. Season to taste, with salt and Worcestershire sauce.

CORN-MEAL MUFFINS.

Two eggs; 1½ cups milk; 1-1.3 cups flour; 1-1.3 cups corn meal; 5 teaspoonfuls baking-powder; 1 teaspoonful salt; 2 tablespoonfuls shortening.

Beat the eggs well; add the milk, then the flour, corn-meal, baking-powder, and salt sifted together. Add the shortening melted, and beat well. Bake quickly in hot, well-oiled muffin-pans.

"I DOTE on metal covers." C. E. Morgan, in *Western Honey Bee*. [So do we.—E. G. B.]

"Two sizes of frames in a beeyard is a nuisance."—J. E. Crane, in *Domestic Beekeeper*.

"Honey will clarify and evaporate much more rapidly in a shallow tank. Less metal is required in the manufacture. Your cover can be made of matched ceiling or other light wood."—Editor Bixby, in *Western Honey Bee*.

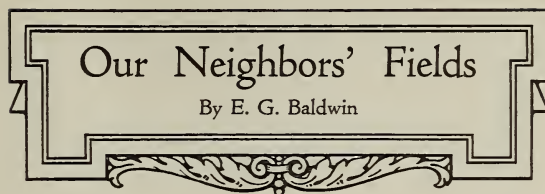
"The best time of all to requeen is early in the spring."—F. M. Perry, Bradentown, Florida, in *American Bee Journal* [Good. But tell us where you get your young queens so early, friend Perry.—E. G. B.]

"If the small producer will continue to ruin the market by not giving the question [of marketing, E. G. B.] any thought, and just sell for what he can get, he is not deserving of the assistance of the expert producers."—Ira D. Bartlett, in *Domestic Beekeeper*.

"The beekeepers need a strong national organization. The present association has survived numerous storms that have threatened to wreck it, and it is to be hoped that under the leadership of Professor Jager it will profit by the mistakes of the past and gain a new lease of life."—Frank C. Pellett, in *American Bee Journal*.

"The colder the outside air, the smaller and warmer the cluster. The warmer the outside air, the larger the cluster, till the air outside is 57 degrees, when, presto! change! there is no cluster, the bees are scattered all thru the hive, and summer has come to the bees. This will happen on any warm day in the winter. A few hours of warmth will do it."—C. E. Fowler, in *American Bee Journal*. [Wonder if this is not the reason we find bees flying in the winter any time the temperature rises to about 57 degrees. The moment the cluster breaks up, out come the bees.—E. G. B.]

Floyd Markham, in the *Domestic Beekeeper*, says: All colonies run for comb honey were reduced to nine frames, and a division-board put in on each side, when the



first super was put on. I believe this open passage at each side of the brood-nest has something to do with getting the honey at the sides of the su-

per [that is, getting the bees to store honey in the outside rows of sections.—E. G. B.] Another reason is that this passage, about half an inch wide, reaching from floor to cover, even when the supers are tiered up on the hive, affords better ventilation in hot weather." [Why not combine the two ideas?—E. G. B.]

"When we remember that not more than one beekeeper in five ever takes or reads a bee-journal of any kind, we need not be surprised at the ignorance that broods over the beekeeping world."—J. E. Crane, in *Domestic Beekeeper*.

KINK FOR KEEPING BOTTOMS OF SECTIONS CLEAN.

"We have found a honey-board to cover the entire surface of the brood-chamber, with no entrance thru it, but two slots on each side for the bees to carry the honey up into the super an advantage. This board covers all the center of the brood-chamber, where bits of dirty wax are liable to be carried up and mixed with the cap-pings of the sections, and injure their appearance. It should not be put on till work in sections has well begun, after which it does not seem to keep bees from storing in the sections."—J. E. Crane, in *Domestic Beekeeper*.*

STATE EXPERIMENT APIARY IN TEXAS.

"Mr. B. Youngblood, director of the Experiment Station, has signified his intention to provide, in his forthcoming estimates of needed appropriations, for the establishment of an experimental apiary for the study of practical beekeeping methods in Texas. . . . It is not contemplated to compete in any way with the work of Dr. Phillips at Washington; we do not want to do the same class of work that is carried on there. What we want in Texas is practical work."—E. G. LeSturgeon, in *Bee Item*. [Every state should have its own experimental apiary, and station as well. There are local conditions, local needs, local questions that only a home station can handle. Every state is, in a way, a law unto itself. We shall welcome the day when every state in the Union not only contemplates but has its own apiary and yards.—E. G. B.]

* See page 190, February number.

THERE are indications—a plenty that honey is more and more coming into favor with the cook. A letter received at the

Home of the Honeybees from Paris, date of Jan. 30, signed I. Curtise, says: "Have just seen an advertisement of your cook-book of 100 recipes for things in which honey can be used instead of sugar. As sugar is now increasingly difficult to get in France I should be grateful to you if you would take the trouble to send me your book." An aeronaut, H. C. Davis, of East Orange, N. J., has recently written to ask for an Airline honey cook-book, saying "it is to supplant my wife's Orthodox Presbyterian Cook-book, used for 18 years and now worn out—so am I, almost—and so she has decided to try a new style on me." The flyer adds that his wife may find a recipe in the book that will cause him to "soar to heights unknown." What does that last mean?

Hermann Rauchfuss and son, Frank, of Denver, Colo., were visitors at the office recently, and mighty welcome they were. If they don't know something about the bee and honey business, nobody does. Mr. Hermann Rauchfuss is a booster for Caucasians, but he would not introduce them where pure Italians have already been introduced. He tells of a strain of Caucasians that he once owned that were practically as gentle and stingless as flies. He admits, however, that they gather a good deal of propolis. The son, Frank Rauchfuss, managed one rather large yard, giving to it less than one day a week thruout the last season, but secured an average of 150 pounds of comb honey per colony. That is "going some" for a comb-honey outyard.

You'll be kicked if you do, and be kicked if you don't, is just another way of saying it—so that it doesn't sound quite so bad. To get down to what we are driving at: GLEANINGS requires its advertisers of bees and queens to answer satisfactorily a list of questions as to qualification to produce properly what they wish to advertise, and ability to fill orders promptly for the same. This procedure is taken solely to protect GLEANINGS' readers against poor stock and delayed delivery. Every reputable queen and bee rearer is glad to give such information to publishers of their advertisements. But there are others. One such showed up

AROUND THE OFFICE

M.-A.-O.

on the GLEANINGS landscape this month, displaying all the symptoms of an irritated hornet. Here are some of his stings: "Every queen-

breeder you Roots can keep from advertising, you have one less competitor;" "I know as much as you or any of your tribe about the bee business;" "I suppose when you advertise Airline honey the advertisers quizzed you down to know that your bees did not suck any sugar-barrel lids or gather any bug-juice before they took your ad;" "I expect to take this matter up with Dr. Phillips and the postal authorities to know your limits to refuse me advertising space," etc. Hit 'em again. Yea, verily, you'll be kicked if you do, and you'll be kicked if you don't.

It has always been reported—and generally accepted as a fact—that it was a high and merry time "when Belshazzar the king made a great feast to a thousand of his lords," and himself led off in lapping up the wine and embracing the ladies present. But that was a "picked-up" supper after a long ride in the rain compared with the time last week in the office when it was announced finally and at last and for sure that the new A B C and X Y Z of Bee Culture was all printed and being bound. The sales department and GLEANINGS' subscription department didn't go Belshazzar one or two better, on the strength of this news, only because they didn't know how. They felt like Belshazzaring all right enough. Any way, let's shake hands all round on the completion of the 1917 edition of the A B C.

Here's a pretty fairly good one, as good ones go nowadays. A sure-enough beginner recently wrote a beekeepers' supply company in Ohio that he was contemplating buying a colony of bees from a man who had been running for extracted honey only, and added: "Now what I would like to know sure is, will the bees that he has been using for extracted be all right for me to use for comb honey?" The sales manager's clerk, who didn't care much about his job, as appeared from subsequent events, replied as follows: "Just detach their extractors and they will soon get over the habit." The Man-Around-The-Office would have never, never fired that clerk. I would have advanced his pay and made him head foolkiller of all beedom.

A C. K., Illinois.
—How can I
determine
when a colony
has or has had
dysentery?

A. In early spring, when the bees have their first flight there will be more or less spotting of the hives, even with healthy colonies. That is to say, the bees will in flight cast small drops of a light yellow liquid excreta. Unless these spots are of a very dark-brown or black color they do not indicate anything abnormal—certainly not dysentery; but if the front of the hives is badly smeared up with dark-brown or black spots, and particularly if the inside of the hive has its combs smeared over with ill-smelling dark-brown or blackish excreta, about half or two-thirds of the bees dead, and the rest listless, it may be concluded that it is a bad case of dysentery, and that there is probably no hope.

A colony may have a slight attack of dysentery affecting a few individual bees; but with the approach of warm weather it will soon recover itself.

B. C. C., Pennsylvania.—What is the cause of dysentery?

A. Bad food, insufficient protection, a small cluster in the fall, improper housing, or a severely cold winter. Any one of the conditions mentioned may cause dysentery; but usually it requires a combination of two or three. A good colony on bad food, well protected, will generally come thru the winter in good condition without dysentery. A small colony or nucleus, even when well packed, may have the disease, because the cluster is not large enough to keep up bodily heat in a severely cold part of the winter in spite of protection. Bad food, unripened honey, or honey-dew may cause dysentery when all other conditions are as they should be. A very prolonged and severely cold winter, with the mercury below zero most of the time, may cause a good many well-housed colonies in the apiary to show dysentery before spring; but such winters fortunately are few and far between.

Dysentery will be caused by having the house cellar too warm with insufficient ventilation. It may be caused, likewise, by the opposite condition of the cellar—too cold. A temperature of 50 degrees Fahr., with a large amount of ventilation in the cellar, will usually insure against dysentery, provided, of course, the colony is not too weak or the stores bad. Even then, if temperature and ventilation are right, there may, and probably will be, no trouble.

W. Z. K., New York.—What is spring dwindling?

A. This can hardly be called a disease, but, rather, a gradual reduction in the strength of a very weak cluster of bees to start on. Improper housing or improper food may start dysentery. In either case, the colony, in an

GLEANED BY ASKING

E. R. Root

effort to keep warm, becomes too active, and consumes too heavily of its stores, with the result that many bees, in their distress from re-

tained feces, rush out of the hive in cold weather and die. This constant depletion in numbers continues until not over a handful will be left surrounding the queen. Sometimes spring dwindling is accompanied by no signs of dysentery but a gradual dying-off of the bees, due to the fact that the colony went into winter quarters with too many old bees, and these, continuing to die off, leave but a mere handful by spring.

Uniting small clusters with other small clusters does but little good. However, a bunch of bees on a frame of brood placed in the upper story of a strong colony may build up into a nice colony. See Alexander plan in A B C and X Y Z of Bee Culture.

N. A. C., Ohio.—Nearly every spring my neighbors complain that my bees are visiting the cow-stables, and driving the cattle out of the barn. What can I do to prevent this?

A. There is not much that one can do to stop it. However, the presence of a large amount of pollen the previous fall in combs placed outside of the brood-nest, will go a long way toward its prevention. Placing cotton-seed meal or rye meal in trays in the apiary will sometimes act as a counter-attraction. Get the bees started with a little syrup or sweetened water. The trays should be placed in a sheltered spot in the sunshine, when the bees will visit it on warm days. If you can get them started in the first place on these trays of meal they will not bother the neighbors' stables.

J. K. M., Iowa.—How soon can I unpack my bees in the spring?

A. Better leave the packing on too long than to take it off too soon. Leave it on until settled warm weather comes on. The outer cases sometimes have to be removed in order to make it possible to put on upper stories with a large amount of extra room; but when a colony is able to take an upper story, no harm will be done by removing the outside packing-case.

L. S. V. Indiana.—How many combs of stores ought a colony to have in early spring to carry them thru until the honey-flow?

A. They cannot very well have too much. There usually will not be more than two or three combs of sealed stores. In the center of the brood-nest most of the food will be eaten out, and in its place will be brood. A colony that is "rich in stores," as Doolittle says, will rear more brood than one that is short of them; hence it is very important to have the brood-nest well supplied. If there is only a comb or two of honey in the brood-nest, two or three extra combs of sealed

honey should replace the empty combs; but they should be put on the outside—not in the center. If one does not have a supply of extra combs of honey he may feed thick sugar syrup; or give a block of hard candy. Cubes of loaf sugar placed in a shallow tray moistened with water answer very well as a temporary substitute. There is nothing better than combs of sealed stores containing if possible some pollen; and the apiarist should always have a reserve of them to use in the spring.

H. A. R., Tennessee.—My combs are heavily loaded with pollen. How can I remove it?

A. Do not remove it. They are the best stock in trade you can have. Next to sealed stores there is no more valuable asset for bees in early spring than combs of pollen. Sometimes we would give more for a few combs of pollen than we would for sealed stores. Pollen-combs may be worth in the early spring one or two dollars each.

D. A. B., Vermont.—Should I commence spreading brood in the brood-nest by May 1?

A. We advise against it. Usually the queen will enlarge the circle of egg-laying as fast as the bees can take care of it. An empty comb placed in the center of the brood-nest, unless it is during a period of settled warm weather, does more harm than good. If the queen fails to lay properly, pinch her head and put a good one in her place; or unite the colony with some weak one that has a good queen.

R. C. A., Minnesota.—A large number of my colonies are weak. Should I unite these, or should I secure package packages from the South to build them up?

A. We advise getting the bees from the South. Be sure you buy of a good breeder—one who will guarantee that the sugar out of which the candy is made has been boiled 20 minutes in a closed vessel.

Avoid buying bees of those who quote the lowest price. We have had numerous complaints against those who sold at low prices, and who contended that they could not afford to replace loss in shipments on account of the low price at which they sold the bees. No matter what the price is, there should be an understanding that all losses will be replaced promptly by the shipper by sending more bees or returning the value in cash. As a general rule those who have advertised for some years may be depended on to render service and quality.

H. S. T., Minnesota.—Can bees be moved during winter?

A. Yes, very easily. If there is snow on the ground and sleighing is good there is no better time for moving bees. A little snow thrown over the entrances to close them will prevent the escape of the bees, when the hives can be loaded on to the sled. There is no danger of suffocation, because the snow will melt long before any trouble of that kind can occur. We have moved

bees from outyards in mid-winter, and put them in the cellar and had the colonies come out in the spring in fine condition.

C. H. G., Wisconsin.—In building up my colonies, those that are below par, I am at a loss to know whether I should unite two weak ones or a weak one with a strong one.

A. A good deal will depend on conditions. Where two weak ones are side by side, the stronger one can be moved to a position about midway between where the other stood and its neighbor united with it. All flying bees will then unite at one stand.

In the case of where two of the colonies to be united are in remote parts of the apiary, we would build up the stronger at the expense of the weaker by taking from the latter a frame of sealed brood and giving it to the stronger. Continue this practice until the weak one has exhausted all its brood, and then take all the bees and carry them to the other stand.

W. O. M., Provo, Utah.—1. If a colony has its queen taken from them, or should she be killed, can the colony rear a new queen from the eggs left in the worker cells?

2. If a queen should be introduced where there is a laying worker, what would be the result—would the queen be accepted and the worker stop laying?

A. 1. If the colony is queenless the bees will raise another one, providing there are eggs or larvae in the hive.

2. If the laying queen were introduced in a hive where there were laying workers, there is a strong probability that the queen would be killed, altho queens may be introduced some times and the laying workers will disappear. The best way to treat a colony of laying workers is to give them a ripe queen-cell from a good colony. It is not wise to take chances on a good laying queen.

A. D., Colorado.—My colonies of bees are very strong about November. I have a great number of dead ones before the entrance of the hives. Would you advise me if they are weak in spring with plenty of stores to give a young queen for building up the colonies?

A. If any colonies are weak in the spring the giving of young queens might not and probably would not do any good. If the colony is queenless, of course giving them a queen would be the thing to do. The better thing is to unite these weak colonies with other weak ones, especially a queenless one with one that has a queen.

Of course a young queen is as a rule better than an old one. If a colony is weak because the queen is failing, a young or another queen should be given.

J. A. C., Michigan.—Is it possible to have a colony too strong in the spring?

A. Yes. A colony just boiling over with bees is inclined to swarm just at the beginning of the honey-flow. It is advisable to pull it down some by removing from them a frame of hatching brood, and giving it to a colony that is a little below par.

Mother Bee NURSERY RHYMES

By M.G.P. (Mother Goose Plagiarized.)

"Where are you going, my pretty maid?"
 "I'm going to the beeyard, Sir," she said,
 "May I go with you, my pretty maid?"
 "If you'll lift the hives, kind sir," she said.



"What is your fortune, my pretty maid?"
 "My bees are my fortune, Sir," she said.
 "Then I shall marry you," my pretty maid!"
 "You'll be stung if you do, kind Sir," she said."

(He certainly will be—if the artist got her face right.—Editor.)

CONSIDERING actual developments, we are perhaps no nearer a solution of the great problem of getting queens mated in the mammoth greenhouse than we were a month ago; but we are drawing near the time when we shall know. Meanwhile we have been learning.

To date, March 12, the queen showing such a tendency last season to rear drones has had no inclination apparently to lay drone eggs in the combs in the large greenhouse. On the 5th of March the cells in the two drone combs had been polished out and the queen was seen crawling over them, poking her head in exactly as if she were making an investigation prior to laying drone eggs. The subsequent examination



Spreading into the cells the substitute for pollen made by mixing pea-meal and honey.



One-half of the great glass building. Cucumbers are replacing the lettuce and already there are thousands of the golden yellow blossoms yielding to the bees their pollen and nectar. Many of the blossoms are visited by two or three bees in five minutes.

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CAN THIS BE DONE?

The Time Rapidly Approaching when the Actual Experiment of Mat-ing Inside the Building Can be Tried

By the Editors

on March 12, however, revealed no eggs in these drone combs. Therefore we decided not to wait for this queen, nor for any other queen in the greenhouse (there are now some half a dozen colonies in the building), and arrangements were made to have sealed drone brood sent from the South and placed in a strong queenless colony in the greenhouse some time the last week in March.

The question might properly be asked, Why not send to some southern point for a nucleus containing a large proportion of drones? Experience has shown that, when a colony is first placed in the greenhouse, the bees, when they begin to fly, bump the glass considerably and many are lost the first day. When the one colony was established in the greenhouse last November it contained several hundred drones, but, as was reported, these disappeared, no one knows how. We are basing our hopes, therefore, only on drones that hatch within the building.

Our experiments in supplying a substitute for pollen have led to interesting discoveries. As reported in the March number there is no longer any question that a substitute for pollen does enable a colony to rear brood and to increase in strength. The original colony, tho supplied with some natural

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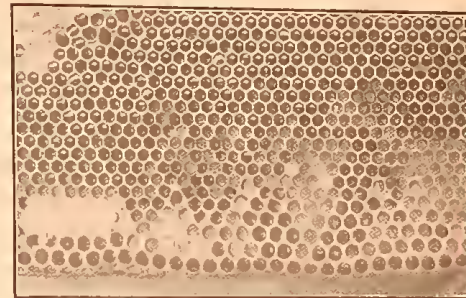
pollen, has had to rely largely upon substitutes for pollen, and is now considerably stronger than it was in November, when placed in the building. We have fed dry rye flour, as well as pea meal and cottonseed meal. In the

dry state the bees have appropriated all three. At first we thought that they went after the cottonseed meal with a little more enthusiasm than the other two; but later results did not seem to show very much difference. When the bees once get started on these dry flours they carry in large quantities.

Samuel Simmins, the English author, in his book, "A Modern Bee Farm," mentions mixing pea meal with honey and spreading this into the cells of an empty comb. We tried this with great success, using a mixture of honey and pea meal as well as honey and cottonseed meal. The bees made use of the pea-meal mixture more readily than of the cottonseed meal. The paste must be made quite thin so that it may be rubbed into the cells. A few days after it is provided, the bees are found to have repacked it in the cells like natural bee-bread, and they use it cheerfully if not gratefully. After a few days the mixture in the cells grows quite tough. The bees seem to use it, but if they can be induced to carry in enough dry meal from trays placed outside the hives, no doubt that is still the best plan

of all. The cucumbers have now begun blossoming, and the bees are visiting the flowers as naturally as if they were working out of doors in June. The natural pollen therefore is beginning to come in.

Too late for reporting in this issue, sealed drone brood will be received from the South, and about the first of April queen-cells will be started. If we fail once we shall try, try again. In that great field with its glass sky, and with its wealth of golden blossoms, we shall watch with breathless interest the flight of those first drones. We have not predicted failure. We have not predicted success. We have merely asked and kept on asking, Can this be done?



The bees move this nitrogenous paste, packing it deep in the cells exactly like natural pollen.



A close view of the cucumber vines. Just above the middle are three shriveled, female blossoms that have been successfully pollinated by the bees as evidenced by the tiny cucumber beginning to develop before the petals have fallen.

ANOTHER new organization, a state society, is the Rhode Island Beekeepers' Association, which was organized at Providence, February 21. Frequent meetings are to be held, probably at the lecture room of the Providence Public Library. The president is Arthur C. Miller; secretary, Gardner B. Willis.

PUTTING BEES INTO MOVIES.

Prof. George A. Coleman, of the University of California, has started an elaborate plan for putting bees into the movies. He has already gotten out a film for the Department of Extension of Agriculture, at the University, of more than 1500 feet, illustrating the manipulation of bees. This was so well received that he believes the time has come when bee culture in all its branches should be shown in additional films.

As there is considerable expense connected with a work of this kind he proposes a co-operative plan by which all extension departments, beekeepers' associations, and chambers of commerce or individuals interested may obtain copies of the films at a cost just a trifle above the actual cost of making the prints.

The educational value of these films will be tremendous, especially in schools, churches, and commercial organizations. Professor Coleman has prepared a very elaborate scenario on bees and beekeeping, full particulars of which can be obtained by addressing him at room 6, Agricultural Hall, University of California.

THE FIRST MEETING OF THE UNITED HONEY-PRODUCERS' ASSOCIATION AT MADISON, WIS.

The first meeting of the United Honey-producers' Association was held at Madison, Wis., Feb. 6-8. In the absence of the president, Mr. Kindig (who has resigned), the meeting was called to order by Mr. Hassinger, vice-president, of Madison. The secretary's report showed that the membership has grown from nothing up to 225.

A committee was appointed to confer with a similar committee from the National Beekeepers' Association to decide on a way to co-ordinate the work of the two organizations. This committee consisted of President Bixby, of New York; Secretary G. W. Williams, of Indiana, and Vice-president W. D. Wright, of New York.

A committee was appointed to extend the

JUST NEWS

Editors

educational work, already begun in schools, into normal schools, colleges, and universities throuth the country. The meeting then ad-

joined and met again Feb. 8. This meeting was called to order by Vice-president D. C. Polhemus, of Colorado.

The following officers and directors were elected: President, Geo. J. Brown, California; Vice-president, Wheeler D. Wright, New York; Secretary-Treasurer, Geo. W. Williams, Indiana. Directors: R. B. Davis, Staunton, Ind.; E.W. Aepler, Madison, Wis.; Miss Iona Fowls, Oberlin, Ohio; Allen Latham, Norwich, Ct.; P. J. Lucas, Topeka, Kan.

The auditing committee failed to agree on a satisfactory report, but were instructed to examine the vouchers and bills which were not present, and to prepare a complete report for the next meeting.

THE SPENCER APIARIES COMPANY—R. M. SPENCER.

It will be remembered that several complaints have been lodged against the Spencer Apiaries Co., doing business at Nordhoff, and later at Ventura, Cal., in furnishing bees and queens in package form. After an investigation we concluded that Mr. Spencer was not dishonest but unfortunate on account of the poor season, and that he would make good to his customers. See GLEANINGS for March, 1916, page 216. Later on, more complaints came in, and we took the matter up with Mr. Spencer again. We told him we should have to lay the facts before the public, and his replies were peculiar. These complaints finally became so numerous that they were laid before the Postoffice Department. It now develops that the poor man is insane, which fact explains some of his letters. See the following from the Postoffice Department, Division of San Francisco.

Sir:—Believing the following will be of interest to you I submit the information herewith, contained in a letter from the postmaster at Ventura, Cal., under date of February 5, 1917:

"Referring to recent complaints forwarded to your office against R. M. Spencer and Spencer Apiaries Company, of this city and Nordhoff, Cal., I wish to state that, before the Superior Court of this county on February 3, said R. M. Spencer was adjudged insane and committed to the State Hospital at Agnew, California."

C. D. Lowe, Postoffice Inspector,
Los Angeles, Cal., Feb. 10, 1917.

BEEKEEPING STATISTICS IN MINNESOTA.

From the last circular of the Apiary Department of the Minnesota University Farm, the winter loss for 1915-16 in Minnesota is given as 10.2 per cent—668 colonies out of 6508. Beekeepers owning over 100 colonies had a loss of 9.5 per cent while those owning less than 100 colonies reported 10.6 per cent loss; 37.7 per cent of the Minnesota beekeepers are farmers. The greatest problem in wintering is the supplying of winter stores.

Of the beekeepers that reported, 5 per cent were subscribers to one, two, three, or four bee journals. Only 16 per cent were members of some beekeepers' organization; 42.7 per cent owned Italian bees.

* * *

BEES ON COMBS BARRED FROM ONTARIO.

Shippers of hives of bees should be notified that bees in hives or in nuclei containing combs, if shipped to Ontario, Canada, will be quarantined at the port of entry for a period of not more than nine months. If such bees are found to be infected they shall be destroyed. Bees in pound packages without combs are exempt from this detention provided they are accompanied by a satisfactory certificate from a state or provincial inspector declaring them to be free from disease at the point of shipment.

* * *

DEATH OF D. C. POLHEMUS.

The editorial staff is very sorry to learn of the death of D. C. Polhemus, on Feb. 13, as announced by Wesley Foster in his department, beekeeping among the Rockies, in this issue. For one who was so largely engaged in the business—one who probably knew more about handling bees in a large way than most beekeepers—he was exceedingly modest. A member of our staff met him on his way to the Madison convention, where he was elected vice-president and chairman of the Industrial Committee. At that time, while he did not seem to be strong he gave no indication that death was so near.

Mr. Polhemus would have made a good vice-president as well as chairman of the Industrial Committee of the National had he lived. He will be missed in more ways than one.

* * *

DEATH OF EDWARD BERTRAND.

Edward Bertrand, the veteran editor of the Swiss bee journal entitled *Bulletin d'Apiculture*, later published under the name of *Revue Internationale d'Apiculture*, died on the 17th of January in his 85th

year. Mr. Bertrand was widely known all over the world. It was he who translated Dadant's Langstroth Revised into French. His influence was widely distributed throughout Europe. He leaves a wife with whom he had lived for 51 years.

* * *

DEATH OF J. VANDEVORT.

Mr. J. Vandevort, of Laceyville, Pa., died on the 10th of February last. In the early 80's Mr. Vandevort made foundation-mills, and very good ones too.

* * *

WINTER LOSSES.

Reports are beginning to show that in most localities of the United States bees have been apparently wintering well. But there are some exceptions. In the Northwest, Minnesota, the Dakotas, Colorado, Montana, and in parts of Idaho, there appears to be some mortality. Some losses have been reported from Pennsylvania. The severe freeze in some of the southern states, particularly in Alabama, Georgia, and Florida, has been hard on the bees and the brood. It has killed off the pollen and honey bearing plants in some of the localities, and this will make it difficult for bees to breed up properly.

Those beekeepers who are furnishing bees in pound packages, and who may be located in districts where the frost was severe, may be handicapped in filling their orders.

* * *

LATEST REPORTS ON BEE CONDITIONS AND PROSPECTS FOR 1917.

Below we print special correspondence on bee conditions and present prospects in various parts of the country. We asked our correspondents to report on how bees have wintered, condition of colonies and amount of stores, condition of clover and other honey-producing plants, weather conditions and rainfall. Here is a summary of the replies received up to March 20:

Redlands, Calif., March 16.

Winter loss normal; conditions fair to good; condition of honey plants good; colonies progressing nicely; some shortage of stores; season cold and backward with not sufficient rain to insure crop; bees advancing about with season; more good rain will insure crop; buyers contracting from 7½¢ down. —P. C. Chadwick.

Portland, Ore., March 16.

Bees wintered well; loss light; clover conditions, etc., never better; winter mild tho prolonged; colonies strong; stores plenty; at various times been flying for weeks; weather still cool, later than 1916; rainfall thirteen inches short; prospects never better; 1916 surplus still unsold; indications tend to more extracted than comb. —Portland Seed Co.

San Jose, Calif., March 17.

Bees have wintered very poorly, owing to coldest winter ever known here; great deal of stores candied; season over two months late; rainfall a little below normal, but sage and everything now looking good; fruit trees in bloom will be at their best March 25.—J. E. Wing.

Parawan, Utah, March 16.

Bees have wintered poorly, honey-producing plants best in years; coldest weather in eighteen years; plenty of snow; colonies have consumed a great amount of stores; average prospects for 1917 best in years; all honey sold at high prices.—M. L. Skogard.

Idaho Falls, Ida., March 16.

Long hard winter; too early to estimate results; anticipate heavy winter losses on account of heavy snow and long winter; alfalfa and sweet-clover should be excellent; long winter and heaviest snowfall in 20 years; expect large demand for bees in pound packages to build colonies this spring.—Idaho Honey Producers' Association.

Hansen, Ida., March 16.

There will be a loss of 50 per cent in bees all over Twin Falls district. It is snowing today. We have had the worst winter I ever saw anywhere, and the bees had much honey-dew for winter stores too.—C. C. Matthews.

Denver, Colo., March 16;

Bees wintering below normal; alfalfa and sweet clover in fine condition; strength of colonies weakened by severe winter; stores short; heavy losses reported from Idaho and western Colorado on account of honey-dew; abundant snowfall in mountains; precipitation above normal; quite a number planning to fill empty hives with package bees.—Wesley Foster.

Grand Junction, Colo., March 16.

Winter loss probably 10 to 15 per cent above normal; condition of honey-plants good; colonies probably weaker than normal, but with plenty of stores; winter has been severe with a favorable amount of snow.—J. A. Green.

College Station, Tex., March 16.

Bees wintered much better than usual; horsemint will be short; catsclaw and huajilla may be short, but mesquite will be good; bees are in good condition now; winter and spring has been dry; more interest being taken in beekeeping than ever before; honey market is cleaned.—F. B. Paddock, State Entomologist.

Augusta, Kans., March 15.

Kansas and Oklahoma bees wintering best in years, now in strong condition and stores good; rains this week make outlook for clovers good, but winter has been very dry; very little cold; judging from this date, outlook is best in years for a big year in honey and bees.—Carl F. Buck.

Stillwater, Okla., March 4.

Bees have wintered fine; lost five per cent; colonies strong; plenty of stores; prospects for alfalfa and sweet clover good; season as to weather about normal.—F. W. Vandemark.

Sioux City, Iowa, March 16.

It is still winter and the condition of bees wintered outside is not known; the few reports that come in vary widely from total losses to good wintering; estimate the loss to be 50 per cent on outside wintering; bees went into winter quarters heavy with stores as a rule; but owing to continued low temperature in this locality the consumption of food has consequently been abnormal; bees in cellars are in good condition; clover prospects good; moisture abundant but not in excess.—W. R. Southworth.

Nashville, Tenn., March 16.

Bees seem to have wintered excellently; crimson and red clover seem badly damaged, but white clover, our main dependence, looks promising; condition of colonies normal; pollen-gatherers are at work; fruit bloom is on time and sufficient, stores will be all right; rainfall ample; winter has been severe and trying, but spring seems opening up satisfactorily.—Grace Allen.

Savannah, Ga., March 17.

Expecting a good crop this year despite the big frost and freeze of some weeks ago.—L. W. Crovatt.

Springfield, Ill., March 15.

Bees have wintered very well; cold has been quite severe, but with intervals warm enough for them to get to their food, and less frequently, had several good flights; clover condition uncertain yet but hopeful; strength of the colonies and amount of

stores is more than 100 per cent of an average condition; weather has been uncommonly dry all winter, with very little snow, and only one or two light showers, and that did not get into the ground because of the frost; have 18 acres of sweet-clover pasture that is fine.—Jas. A. Stone.

Platteville, Wis., March 15.

Too early to know how bees have wintered; cellar bees are fine; those outside report bees spotting hives badly; some dead; condition of clover fine; condition of colonies uncertain; good winter stores; but one day since Oct. 24 bees could fly; long steady cold; bees wintered well in cellars so far; where plenty of good winter stores and protected, outside should winter fair at least. A report a month later will tell better for Wisconsin. Ground is white with snow yet; cold nights; plenty of ice.—N. E. France.

Hammond, Ind., March 13.

Bees in cellar wintering perfectly; clover looked fairly good last fall but not so much of it as the year before; weather dry till March 13 when we had good rains; it will be hard to tell much about the bees till they are out of the cellar.—John C. Bull.

Middlebury, Vt., March 15.

Too early in this section to report with much certainty of the wintering of bees; so far as observed, appear to have wintered fairly well; have not had a chance for flight for over four months; clover should winter well, as the ground has been covered with snow for over three months with little ice on ground; weather conditions appear favorable.—J. E. Crane.

Lansing, Mich., March 16.

In central Michigan winter losses probably 50 per cent; have had steady cold weather thru March with exception of moderate weather for a day or so; losses in many cases not due to lack of stores, but too cold to move over; U. S. Weather Bureau here reports rainfall one-half normal, and temperature for January to March below normal; condition of clover uncertain as it had not advanced as much as usual last fall owing to dry weather.—Elmore A. Hunt.

Syracuse, N. Y., March 16.

Bees in cellar wintering nicely; outdoors, 20 per cent loss; colonies well supplied with stores; beekeepers expect a good crop; the weather for the last two months has been cold, and no flights of bees outdoors; this month, so far, no flight, and weather has been cold but not much snow.—F. A. Salisbury.

Markham, Ont., March 15.

Too early to make a forecast for Ontario. Remarkably steady cold winter, and bees have not had a cleansing flight; hardly had a day warm enough to let them change clustering spaces; weaker colonies show signs of dysentery; would say that if we get a warm day inside of a week or ten days, the bulk of colonies will be all right; but unless we get a warm day soon, something is liable to happen; cellar winterers report their bees to be very quiet—in fact, the season has been ideal for indoor wintering; snowfall has been light here, but snow has been with us continuously since last November, and at this date alsike-fields have a light covering yet; alsike is all right yet; critical time to come when snow goes; other sections of the Province have had a heavy fall of snow.—J. L. Byer.

Deland, Fla., March 17.

Bees wintered well; pennyroyal, altho thought to be badly hurt by the cold, yielded fairly well; orange now probably fair, but owing to the cold as far south as 28th parallel there may be only partial crop; south of that, possible late in April or May will give a slight surplus; mangrove badly damaged but too early to predict regarding it; main sources for table honey are scrub and cabbage palmetto now full of flowers; colonies strong but have consumed stores rapidly on account of warm weather; weather fine now, rainfall below average; general outlook for surplus promising.—E. G. Baldwin.

Liverpool, Pa., March 15.

Bees have wintered well so far, and per cent of winter loss is small; clovers had a good stand last fall and were well covered with snow; rainfall has been abundant; bees are fairly strong and have plenty of stores; everything thus far is in favor of the beekeeper.—H. C. Klinger.

Falmouth, Ky., March 15.

Winter losses about 15 per cent; sweet clover and aster in excellent condition, white clover poor; moisture excessive; colonies strong.—Virgil Weaver.

IN Lesson No. 1 we took up in detail the different parts of the hive. In Lesson No. 2 we had several glimpses into the mysterious interior of the hive proper, examined the building of the comb, the storing of the pollen and the honey, and the rearing of the brood. In this Lesson it is proper, especially at this time of the year, to consider what kind of outfit the prospective beekeeper, the "new" beginner, should have.

Most beginners wish to produce comb honey. Some authorities advise it, in fact, but there is little or no reason for this aside from the inadequate excuse that the production of comb honey requires no honey-extractor—that is, the machine for whirling the combs and throwing the honey out by the centrifugal force thus created. It is

BEGINNERS' LESSONS

H. H. Root

LESSON NO. 3.—THE FIRST EQUIPMENT.

honey production. There are several reasons for this. Bees do not produce honey in the small section honey-boxes as readily as they do in the larger combs, simply because the small combs, divided up as they are, and separated from each other, are somewhat contrary to nature. Now, because bees do not as readily enter these comb-honey supers, it is more difficult to keep them from swarming and thus dividing their forces at a time when only by united action can a large amount of surplus honey be produced.

Then a colony to produce a paying crop of comb honey must be brought to the very acme of strength just at the time the honey-

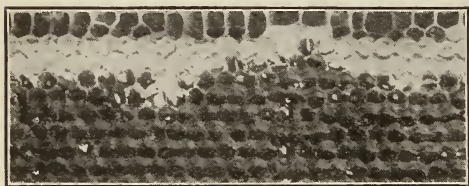
a fact, to which any experienced beekeeper will testify, that extracted - honey production requires far less skill than successful comb-



An outfit for a beginner who expects to produce extracted honey:

- | | |
|---|---------------------------------|
| 1 ten-frame hive body, wired frames with sheets of comb foundation. | 1 uncapping-knife. |
| 2 ten-frame supers identical with hive body. | 1 No. 2 bee-veil. |
| 1 floor-board. | 1 bee-smoker. |
| 1 inner cover. | 1 hive-tool. |
| 1 outer cover. | 1 pair bee-gloves (if desired). |
| 1 two-frame honey-extractor. | |
| 1 bee-brush. | |

flow starts. Too often, under the management of a beginner, a colony will swarm before getting well started in the comb-honey supers.



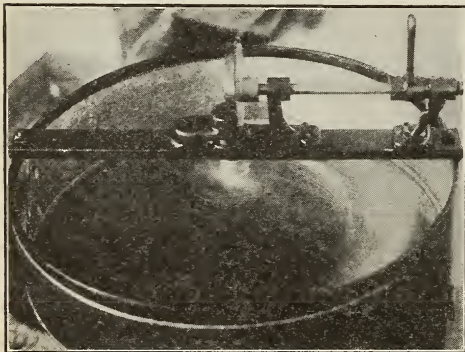
Cappings sliced off leaving the dripping honey exposed ready to be extracted.

An abundance of room, which is one of the great preventives of swarming, can not be given to colonies run for the production of comb honey, otherwise there are likely to be a good many unfinished sections. In fact, successful comb-honey production requires contentment in spite of the often crowded and almost unnatural surroundings.

Not all seasons are conducive to comb-honey production. The best comb honey is produced in a short time during a quick, bountiful honey-flow. Bees run for comb honey need careful attention at the right time. A beginner in choosing to produce comb honey has to begin very nearly at the top of the ladder. Comb-honey production is, or ought to be, the business of a specialist—at least of an experienced beekeeper.

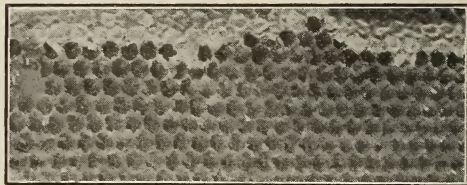
EXTRACTED-HONEY EQUIPMENT SIMPLE.

Aside from the cost of the honey-extractor itself, the first cost of an extracted-honey equipment is practically the same as the cost of the comb-honey outfit. About the only difference is in the choice of supers. While the extracted-honey man may, if he chooses, use shallow supers, not much deeper than ordinary comb-honey supers, the majority use full-depth supers identical with



In the extractor the combs are whirled rapidly. The centrifugal force throws the honey out against the side of the can.

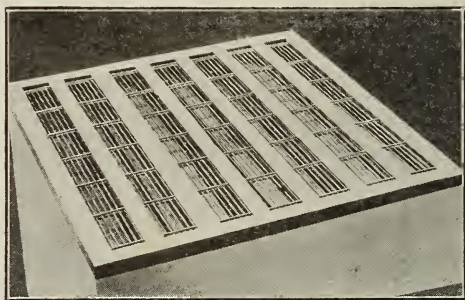
the brood-chambers. This in itself is a long step toward simplicity, the frames surrounding the extracting-combs being identical, usually, with the frames of the brood-chamber below. And here is an important point that many beginners overlook—the subsequent expense for the equipment is much less in case of extracted-honey production where the combs are used over and over again year after year. In comb-honey production the small section boxes have to be bought new every time, of course, as they are sold with the honey.



The empty comb after being extracted may be put back again and refilled by the bees.

Small-sized extractors for a moderate beginning (and all beginnings with bees ought to be moderate), can be purchased at a price not exceeding \$12.00 to \$15.00. Two or three extra supers are needed per colony; for while it is possible, it is unwise to work from hand to mouth, with one super only.

About the only other device used in the apiary that the comb-honey producer does not need is the queen-excluder, a framework



A queen-excluder between the brood-chamber and the supers keeps the queen from going above and laying eggs in the extracting-combs.

with wires located 163-1000 of an inch apart. The worker bees can pass thru these readily, but the queen cannot. Most queens will not enter comb-honey sections to lay eggs; but, unless prevented by a queen-excluder, they are likely to enter extracting-supers.

In Lesson 4 we shall consider the actual start—how to get the bees, the first work to be done, and something concerning the details of extracting honey.

GLEANINGS FROM THE NORTH, SOUTH, EAST, AND WEST

MARCH 3. NOTES FROM CANADA

—I have just returned from

J. L. Byer, Markham, Ont.

making a hasty visit to all five apiaries here in the home district. The day was calm and bright, but not nearly warm enough for bees to fly. Bees were stirred up a little on Dec. 8th last, if I remember correctly, and have been held in snug with the cold ever since.

Judging by external conditions, bees are in fair shape altho signs of dysentery were noticed in a few colonies in each yard. Much depends on whether a good day comes soon for bees to fly. With such a day inside of two or three weeks, prospects are for fair wintering at least.

While we have experienced winters with more excessively cold days, for steady cold weather this winter promises to be a record-breaker. Official temperatures for Toronto for February, just past, give a mean temperature for the month of 16.3 degrees, which is 5.9 degrees below normal, and the statement is further made that it has been the coldest February in 25 years.

A light snowfall has exposed hives to the cold all winter, and at present, March 3, the fields have but a thin covering of snow and ice. For the sake of the alsike clover, a good snowfall that would lie still and not get drifted into piles would be welcomed. But March does not usually act that way, for when it snows, generally it blows as well.

THE CROP COMMITTEE'S PRICES.

On page 89 for February we are told that some beekeepers in Ontario were grumbling because our price or crop committee did not set higher prices this year. No doubt about that at all, but as grumbling and fault-finding is a prerogative common to all members of the genus homo, of course certain beekeepers are not in any way exempt. Dollars to doughnuts, these same kickers were the first ones to kick in the fall of 1913 because they then said that this same committee had recommended *too high* a price, and some even had the audacity to claim that members of the committee deliberately did this so that they could unload early and let the rest suffer. It is always easy to be in the "I told you class" after things have matured; and if prices rather slumped in the fall of 1913 and went the other way this last season, nat-

urally they "knew how it would go." The worst feature in

connection with matters of this kind is that such advice always comes when it is too late to be of any use. Constructive criticism is always in order, while destructive criticism is worse than nothing.

The crop committee, while it no doubt has made mistakes, has after all been the means of saving thousands of dollars to the beekeepers, and the members of the committee have worked for nothing and boarded themselves—let us be decent with them anyway. Needless to add, the writer of these notes is not a member of this committee nor associated with them in any way aside from being a member in common with the rest of them, of the O. B. K. A.

Alighting-boards or other projections under the entrances of winter cases are an abomination. A number of winter cases purchased last fall have two-inch-wide projections under the entrance hole, and today, when visiting the apiary where these cases are, we found half a dozen colonies with the entrances pretty well clogged with ice. A week or ten days ago we had a heavy rain for an hour or more followed by severe freezing weather—just the combination to make trouble with cases having projections as mentioned. Right in the same yard under similar conditions in other respects, not an entrance was bothered with ice where the case had a perfectly clear front and nothing to catch falling water under the entrance. Build winter cases with no alighting-boards under the entrances; incline the cases on stands so that they lean pretty well forward, and forget all troubles as to entrances getting clogged with ice.

Honey is still in keen demand with little to offer. Looks as tho next year's crop, if we should have one, will come on a clear market. The crop, in addition to being heavy in quantity last year, was away above the average in quality—the latter factor was no doubt a strong feature in helping to create the great demand that has existed for honey for the past few months.

It gives us northern fellows quite a shock to read on p. 195, March issue, that North Carolina expects a loss of 30 per cent of the bees because of a hard winter. My father

has been spending a good deal of the winter in that state, and naturally I had a feeling that North Carolina was comparatively warm in the winter. But I also notice that "low stores" are mentioned. I wonder if the latter item is not more responsible than the cold weather.

That picture of the apiary in the forest, page 103, caught my eye, as it looks like one of our apiaries very much. But when I saw those high trees and then read of swarming and no queens clipped—well, to use a slang phrase "none for mine." How a man can run out-apiaries and not clip queens is a mystery to me, and I am

sure if Mr. James tried the clipping plan he would not be willing to climb trees any more, which at best is a killing job on a hot day, and often dangerous to body or limb.

Just a word in regard to the editor's racy account of his rush visit, page 109, February. He speaks of the entrances of those big hives as being 1 by 3 inches. They are larger than that. As to strychnine being scattered around the yard, of course that means that the poison mixed with meal is placed in small tins in under tops of outside cases. Some more "explaining" may be in order when that article appears as referred to by the editor.



THE writer has to report the death of Mr. D.

AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado

C. Polhemus, of Lamar, Colorado, Feb. 13, 1917, just three days after his return from Madison, Wisconsin. Little did we think death would claim our friend so suddenly, for, so far as we could tell, he would live for years. Mr. Polhemus was elected vice-president of the National Beekeepers' Association, and chairman of the Industrial Section. In January he was elected president of the Colorado State Beekeepers' Association. We have lost a man from whom we had hoped, and justly so, that great good would come to beekeeping thru his efforts. It will be very difficult to fill his place. He was a man of quiet dignity and sound judgment. Seldom have we had in our ranks so substantial a force as was he. He wasted neither his own time nor that of any one else with useless talk.

Mr. Polhemus was but fifty-six years of age, and had been engaged in bee culture for a little over twenty years, having become associated with Oliver Foster at Las Animas, Colo., in 1895. He decided to take up beekeeping and moved to Lamar, where he has since resided. He owned and operated over 2000 colonies of bees, and was a heavy buyer of comb and extracted honey for his trade in Kansas, Oklahoma, and Colorado.

Beekeepers who attended the National convention will be glad to know that Mr. Polhemus spent a very happy season there, and Mrs. Polhemus tells me he was very much pleased with the honor of the election as vice-president and chairman of the industrial section. He had begun planning the work for the coming year, and had hoped

to aid the members in the purchase of honey - e containers,

and also had a few plans in mind for aiding beekeepers in marketing. Mr. Polhemus survived by Mrs. Polhemus, and son Edgar, who was associated with his father under the name D. C. Polhemus and Son. The sympathy of all beekeepers goes to the wife and son in their sorrow.

THE HONEY-MARKETING SITUATION.

Extracted honey is in good demand, the sales running probably two to one for comb honey. However, comb honey will be pretty well cleaned up before the new crop is harvested. Prices on comb honey have not advanced recently to speak of; but sales have been better. The spring trade in comb honey promises to be very good; and if business conditions remain as they are now, the comb honey will be moved at a fair price.

Comb honey is offered at about \$2.25 to \$2.60 per case of 24 sections, according to grade and packing. The advance in the price of tin and glass containers has made it imperative that the price of package honey be advanced. Pint jars of extracted honey now retail at 30 to 35 cts. each, and one-pound glass jars retail at 25 cts. If one is not careful he will find that where honey is put up in 2½-lb., 5-lb., and 10-lb. cans the cost of the honey, cans, labels, freight, etc., will come to more than the selling price. We have to keep revising our prices to keep up with the advances.

THE WINTERING OF BEES.

Our winter has been a severe one—much more cold and wind than usual, and consequently we shall doubtless have heavier

losses than common. In western Colorado there has been more severe weather than ever in the eastern part of the state. It is reported from the Grand Valley that nearly every morning for two months the mercury has hovered around zero. There is not the snow reported in the abundance we have on

the Front Range, but doubtless there will be little if any lack of water for irrigation. Idaho reports heavy losses caused from honey-dew in the winter stores. Losses as high as forty per cent are expected, and one report gives a loss of twenty-nine colonies out of thirty.



THE bees are building up very rapidly this spring.

Some of the older beekeepers say they never saw drones flying so early in the spring. There is some little concern felt about possible cold weather that may come any time and severely injure the honey-plants, as was the case last year. The dry spell is already being noticed, for some of the early spring sources of nectar have been cut short. In the extreme southern section of the state the more progressive beekeepers fed some to hold the fine colonies that had built up early. In our section the horsemint is doing very nicely. The wild plum was in full bloom March 1.

Never before has there been such concerted action on the part of the beekeepers to secure beneficial legislation. Such efforts are certain to bring results. If not this time it will certainly two years hence. The greatest hindrance in such work is the extreme ignorance of the vast majority of the people regarding the importance of the beekeeping industry in the state. Along this line there recently appeared in one of the leading state papers a feature story in the magazine section of the Sunday edition. The plain facts brought forth in this article have caused many people to think the second time, and to conclude that perhaps there really is something to the beekeeping industry.

Mr. Kenneth Hawkins, of the Bureau of Entomology and the State Relation Service, on March 1 completed a six-weeks' tour of Texas. Mr. Hawkins is in charge of apicultural extension work in the southern states. While in Texas Mr. Hawkins attended the sectional meetings of the farm-demonstration agents. Mr. Hawkins expects to return to Texas by April 1 to hold a series of beekeepers' field meets, in co-operation with the Extension Service of the Texas A. and M. College and the State Entomologist. These meets will be held in at least eight representative sections, under the auspices of the local beekeepers' asso-

IN TEXAS

By F. B. Paddock, State Entomologist

ciations and the county agents. Illustrated evening lectures will be given at each meeting.

In addition to the program Mr. Hawkins will spend some time in studying conditions in each section. It is hoped that this extension work among the beekeepers will result in great good, and that it will be the forerunner of much more extensive work being done on the problem in the state. It is hard to conceive of the ignorance of a good many of the beekeepers. This lack of knowledge is one of the serious handicaps of the foul-brood-eradication work. There is great need in this state of extension work being done in beekeeping. It has been said repeatedly that the possibilities of the industry in this state have hardly been more than uncovered.

In one of the leading state papers, the following recently appeared: "The beekeepers who are complaining of the low price of honey should remember that they haven't done much advertising since Solomon's time." Food for thought. This is an age of advertising.

What is believed to be the first attempt of its kind has recently been inaugurated by one of the county associations. The members of the association have undertaken an educational campaign to eliminate the "bee-gum." Meetings are to be held in the rural schools, with two or three speakers on the program. A modern frame hive will serve as a basis for the instruction, with considerable emphasis put upon the increased returns possible from keeping bees under such conditions. The results of such a campaign will be noted with keen interest on the part of many over the state.

The honey market is cleaned up. There is less honey for sale now than in any of the six seasons past. There is no "carry-over" honey, so the early spring honey should command a good price. Extracted honey is quoted at 10 cents, but there is

none offered, and comb honey is no longer quoted. It seems as tho there were more honey used this past winter than ever before. In view of what we know now, it is easy to say that there is no use of flooding the market again. But the beekeepers have learned their lesson. They have seen the folly of their ways. The Texas Honey Producers' Association will in the future exert a wonderful influence on the supply of honey on the market and the price secured for it.

The *Beekeepers' Item*, edited by Hon. Louis H. Scholl, is filling a long-felt want. Mr. Scholl is to be complimented on the quality of the matter contained in it. The paper is so good that a Texas beekeeper can not afford to be without it.

Light rains were quite general over the northern two-thirds of the state during the first days of March. The rain was followed by a cold wave. The temperature recorded in this section was 32 degrees. These sudden cold spells are trying to the bees.

In the northern part of the state many beekeepers are trying to increase the areas of sweet clover, which is said to do very well in the waste places. It is in this section that some beekeepers build up in the spring, using one queen in a hive of two brood-chambers. Just before the main honey-flow one hive-body is moved to a new stand and a

queen is introduced. This method was mentioned on p. 56.

On March 5 the Ellis County Diversification and Marketing Association held its regular monthly meeting in Waxahachie. The program of this meeting was given over to bees, and many beekeepers of the county, not members of the association, were in attendance. A talk, "Bees on the Farm," was given by F. B. Paddock, State Entomologist, and this was followed by a very pointed talk by Mr. Tom Burleson, of Waxahachie, one of the foremost beekeepers of the state. The idea of the program was to get the farmers of the county to see the need and value of bees on the farm as a part of the general diversification scheme and the live-at-home campaign now being waged in the state. That the meeting had some immediate effect is evidenced by the fact that at least five members made inquiry of where bees were for sale.

In southwest Texas the prospects are very good now for an early crop of honey. Needless to say, this will bring a good price on a "cleaned-up" market.

From north Texas comes the report that the unusually heavy snow which came in that section in the early spring caused a little loss among the beekeepers. The snow drifted over the entrances and the bees smothered. Those colonies closest to the ground suffered the most.

AFTER all, Mr. Hawkins and his southern work did not have to stay discontinued. We are glad to hear he has recovered his health and is back at work again.

If I were a Dixie daffodil I believe I'd join the "Safety First" movement. They are such gaily reckless blossoms that they do often come to grief. This year they burst into bloom so early that even poor hurried February had a chance to enjoy them, and her last week here was beautiful indeed. During those warm daffodil days of February the bees were coming in loaded with pollen from the soft maples, and also taking advantage of the water-pan. Then came March, like neither a lamb nor a lion, but very much like a schoolboy with a grin

THE DIXIE BEE

Grace Allen, Nashville, Tenn.

that makes you suspicious. And on the fifth morning our daffodils were under 8 inches of snow, with some of our single-story hives showing not much but the covers, and the whole outside world standing at 14 degrees above zero.

There are two things I feel impelled to mention—yea, even three—in spite of the fact that they are not related in any particular way to beekeeping south of the line. One is the delightful page of "Mother Pee Nursery Rhymes," with the dear familiar lines done into such irresistible bee jungles and accompanied by such charmingly quaint pictures. Another is the new food page, with its delicious recipes and suggestions, and the promise of so many good things to come; and the third isn't

even in GLEANINGS. It is a booklet containing the annual report of the state inspector of Iowa, Mr. Frank Pellett, and also the report of the Iowa state convention. It contains some unusually interesting papers on almost every angle of beekeeping, and is something the Iowa beekeepers may well be proud to have put out. I certainly appreciate having had an opportunity to see it.

* * *

Mr. Chadwick's remarks and inquiry, page 194, March, about watching bees work on flowers, reminds me of some of my more limited experiences, confined mostly to our own yard—fruit-bloom in spring and smartweed in mid-summer, after the oats die down in the rear chicken-lots. Then last fall I watched them in the althea blooms by the east steps, day after day, till the frost killed the blossoms. They seemed to be after nectar, paying no attention to the pollen, tho invariably they came out of the deep flowers all powdery on the head and back. Then came the clean-up, bewilderingly swift.

Is it true that bees sometimes "achieve" pollen, as it were, by gathering it for its own sake; and at other times, as seemed to be the case with the althea, have it "thrust upon them" and so collect it only incidentally, and as a secondary interest? And when brushing off the pollen that has clung to them uninvited, do they always pack it thriftily into the famous baskets, whether they need it or not, and carry it home?

* * *

In spite of all the extreme and variable weather of the winter, the bees in this immediate part of Tennessee seem to be coming thru with full, or practically full, colony count, tho it is as yet too early to judge of their strength. Today, March 7, every one of our colonies is flying. Mr. Bartholomew reports, however, that in many box-hive localities in the mountain districts this winter has completed the destructive work of the past few unfavorable years, almost wiping the bees out and in some places really doing so quite completely.

Not only has the severe winter been hard on the bees, but reports indicate that the clover crop may have been seriously damaged. Some of the press notices have stated that the damage to both wheat and clover is worse than at any time for thirty years, and that they are both practically killed out. I was talking with Commissioner of Agriculture Bryson this morning and he stated that, while the unofficial indications are that wheat has been damaged to the extent of 50 to 75 per cent, they have

as yet no reports on clover. On his own farm, however, the old clover is killed, and he thinks it likely the loss thruout the state may be heavy. This, of course, refers chiefly to crimson and sweet clovers, white clover usually suffering less than the others from winter-killing. Anyway, we refuse to bury our hopes thus early, tho we admit feeling a bit solemncholy.

* * *

The honey or "sousing" method of introducing proves to have a surprising number of followers, either old or new. We should thank Prof. Baldwin for resurrecting and announcing it. The day may come when every queen will be either sprinkled or immersed. I'll tell you what I'm going to go when I try it—provided the queen has mated, of course. I'm just going to clip her wings then and there, and get that operation over at the same time. Since she is going to be so thoroly daubed with honey, the finger taint will surely be lost. Perhaps a splash of diluted honey at the time of the regular clipping of queens already established may keep them from the danger of getting balled; may be a genuine "sousing" will save one that is being balled.

* * *

I am interested in noticing how many women wear gloves in the beeyard. Until last summer I scorned them. But yielding at last to advice and urgent entreaty I got a pair and started wearing them early last season. Now I am in danger of contracting the habit, as much as anything for the satisfaction of not getting my hands all daubed up with propolis and stuff. But they are hot things, and awkward, and I don't like them a bit. I am convinced that, when you wear them, you need them lots more than when you don't, because the long wide finger ends disturb the bees so much more than deft bare fingertips.

* * *

APRIL-TIME IN DIXIE.

It's April-time in Dixie!
The world is full of song,
Trees are bright with blossoming,
Hearts are young and strong!
Fairy, elf, and pixie
Blow the hours along,
So April-time in Dixie
Doesn't last long!

Dixie bees are humming,
Skies are blue and gay,
Heart, take all that's coming
Each glad day.
Fairy, elf, and pixie
Blow the hours away,
And April-time in Dixie
Soon brings May!

PENNYROY-
al, too, has
suffered by
the freezing

FLORIDA SUNSHINE

E. G. Baldwin

weather of early February. But with warm rains now it will bloom again—in fact, is blooming somewhat at this writing (February 15th). If the forest fires do not burn it off too much the crop may yet be appreciable from pennyroyal. It is rare indeed that the cold waves reach far enough south to touch that rather hardy plant. It had started blooming last October.

From later appearances it seems that the black mangrove of our eastern coast is badly damaged by the frost. Whether it will go "to the grounds" or only the tips of the branches be frozen is yet to be determined. It has taken it 22 years to attain even its height of the year 1916 (about 12 to 15 feet on an average, on its northern limits), and has never attained to the giant flow that characterized it before the "freeze" of 1894-5. As it is one of the best sources of honey in Florida, and the best on the East Coast, the loss will be serious to beemen within reach of its blossoms. It is surely badly hurt. With orange honey out of the question, and mangrove probably gone, it will leave rather scanty sources for honey on the Indian River and vicinity.

Some time ago this department received a communication from Mr. J. W. Eaton, of Welaka, Florida, relative to feeding back honey to the bees. He spoke of feeding dark honey. We cautioned him against letting it get into the super, and he replied: "Your caution about feeding back dark honey to the bees is correct, but I can feed in a way to avoid a mixture of the dark with the good honey." We would add that, if Mr. Eaton has devised a method whereby he can feed back dark honey to the bees and *not* have this dark honey stored eventually in the supers, provided he feeds faster than the bees can consume it at the time, then we wish he would give the readers of GLEANINGS the benefit of his invention. Let us have the benefit of your experience along this line, Mr. Eaton.

One of our local druggists handed us a leaflet, taken from *Drug Topics*, the national representative organ of druggists. The illustration is very attractive. One more avenue of distribution! Surely, when even the druggists begin selling "pure honey" as a food, we may conclude that

our people of
this great land
do not buy
enough drugs,

and hence the drug folk have to sell foods to make money enough. Anyhow it seems mighty encouraging. Sounds a lot better to read of "pure honey" being sold over a drug counter than the usual patent nostrums and curealls and panaceas. What next? Probably the livery stable men and garage men will carry a stock of honey, to supply motor and driving parties with Nature's purest food. Why not?

This letter from Independence, Kansas, adds one more testimony to the efficacy of the "honey method of queen introduction." It reads:

"Dear Sir: — Thanks for telling in GLEANINGS the honey method of introducing queens. The queens are accepted every time and laying the next day, even when they come thru the mails from Pennsylvania."

Several have intimated that it might be necessary to take the honey from the same hive to which the new queen is to be introduced. To all such it may be stated that no such precaution is needed. The point does not lie in the odor of the honey, nor in the odor of the queen being disguised by that of the honey; rather does it depend on the natural tendency of all bees to lick up any and all sweets, particularly honey, wherever and whenever it is found. And when they are thus licking up honey, they seemingly forget all else, even such a trifle as a new queen! Anyhow, when they come to her at the end of their "licking" they go right on, and "lick her right into laying!" At least that is the practical result of it all. Use lots of honey, at least half a teacupful, but take it from any source you please, just so it is free from disease. Of course, if you happen to live so unfortunately (?) far north as Mr. J. E. Crane, or our Canada friends, you may have to warm the honey; but that is not of any interest to us away down in Florida. It was 86 in the shade here yesterday, February 20th. No need to heat our honeys at that temperature. I would suggest that, the thicker the honey the better, provided you can dip the queen and cover her completely. Too thin honey might run off too quickly. You want the queen to be "messed," and good and well too. Don't be afraid to "souse" her thoroly.

HEADS OF GRAIN FROM DIFFERENT FIELDS

APRIL

BY GRACE ALLEN

Young-eyed April, as you come
Dancing down the path of spring,
All the bees begin to hum,
All the birds begin to sing,
All the earth, that was so dumb,
Has a welcome word to fling
Gaily at you as you come
Dancing down the path of spring.

Crocus, tulip, daffodil,
Violet and buttercup
Open wide for you to fill
All their sudden beauty up.
Pour in joy! What tho it spill?
Bee and lady-bird will sup
At the heart of daffodil,
Violet and buttercup!

Oh the April-hearted bees!
How they hover here and hum
In your fairyland of trees—
Applebloom and snowy plum!
You have perfumed every breeze,
You have made us glad you've come,
But your heart is in the bees
Where they hum and hum and hum!



Why Extracted
Honey Has Such
a Future

It can not be denied that the present conditions of the honey market are unprecedented. It is evident that, as the people have their attention drawn toward honey, they are not slow to decide in what form it may be used most economically and to their greatest satisfaction.

There are three sides to the honey question—that is, comb or extracted. The producer, the dealer, and the consumer each has to be considered if we are to realize which way the wind is blowing. It may as well be confessed right now that I favor the production and use of extracted honey. From a personal point of view it appears that almost everything favors that form of honey. To mention briefly the acknowledged facts only, there is less trouble with swarming, fewer skilled operators are required to prepare the crop for market, less work in a general sense, a greater yield, a better yearly average, probably less expense, perfect safety for the product for any length of time after harvesting, lower transportation charges, and less risk of damage or loss. Extracted honey can be used in a thousand and one ways, while comb honey can be eaten only with a spoon.

Large amounts of comb honey, crystallized beyond redemption, are now in the hands of dealers; and the common cry is, "What am I going to do?" The dealer can not be blamed if he vows "never again." This is

the one phase of the comb-honey predicament which is most serious.

The matter of grading and packing comb honey has ever been a tender point, and disagreements and dissatisfaction are not infrequent. The question of damage and loss in transportation, and the nasty messes and incidental injury to other merchandise have to be faced occasionally, while there are rarely any of these troubles in connection with extracted.

When we come to consider honey from the consumers' standpoint, there is opened a wide field for thought. Honey has always hitherto been regarded as a luxury, and quite rightly too. Comb honey is a raw product. It has enjoyed its predominant position from the fact that it is the original and (until comparatively recently) the only form in which good honey has been known. But man is continually seeking improvement, and adapting natural things to serve better his needs and convenience; and who shall say that the removal of pure honey from the huck is not a part of progress and improvement? Comb honey will always be classed as a luxury (and there is always a demand for luxuries as such), while extracted honey bids fair to take its place with other standard household supplies if the supply can be made dependable.

When the housewife sees comb honey in the store it is not associated in her thoughts with any of the necessary supplies which she purchases constantly, being a distinctly different article. On the other hand, liquid honey naturally associates itself with molasses, maple and other syrups, olive oil, and, in fact, all the kitchen supplies of a liquid character put up in glass and tin (the values and cost of which she knows). Having once made a purchase of liquid honey, and become acquainted with it, she thinks of it, as of her other necessary purchases, without doubt or hesitation.

The past history of the honey market (when honey was, more often than not, a drug on the market) and the present conditions as outlined in Gleanings for January, point to two things at least—that is to say, comb honey has never hit the popular fancy, be the reason what it may, while extracted honey has captured the market, which is good enough evidence that the people are finding that it suits their taste and their purses. The problem now is to see that the supply does not fail.

Hoboken, N. J.

C. D. Cheney.



Best Time
to Transfer

1. Is there any time better than another for transferring bees from old box hives to others for increase, not figuring any on the honey?

2. How much wax might one expect to

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extract from a given number of pounds of comb—say how much comb in pounds in a ten-frame hive, and how much wax should one get?

R. A. Clement.

Willoughby, Ohio, Feb. 15.

A. 1. We usually figure that the best time for transferring is early in the spring, along about fruit bloom. At that time there is very little honey in the hive, comparatively; the colony is not strong, and the whole operation of transferring can be performed much more easily then than at any other time.

If the Heddon short method of transferring is used the bees can be nearly all shaken out and hived on frames of foundation. The transferring can then be carried on at any time.

2. The amount of wax that can be obtained from old combs varies somewhat. From ten Langstroth frames one would get all the way from 2 to 3½ lbs. of wax.

Extracted-Honey Colonies Winter the Best

On page 128, February issue, Mr. Foster says that comb-honey colonies are usually in better condition for winter. Now, I find it the other way. Comb-honey colonies usually crowd the queen in the last part of summer so there is not an oversupply of young bees to winter. At least they can't come up to extracting colonies with young bees. I find that the colonies run for extracted honey winter the best, and are usually stronger in the spring.

Perhaps Mr. Foster means that the extracting colonies have a better supply of honey. Well, the beekeeper can regulate that. I always winter in two-story hives, and the upper stories are mostly solid honey, with some below to carry up in the spring. The bees usually winter in the upper stories, and have their brood-nest there in the spring.

Brush, Colo.

Daniel Danielson.

A New Era for Beekeeping in Oregon

The year just closed has marked a new era for this section. The honey crop being somewhat better than in former years, the bee-men began discussing things which resulted in an association being formed under the name of "Umatilla Valley Beekeepers," including all honey-producers of the valley. Five officers were elected—three for three years and two for one year.

A bill was drafted and presented to the state legislature, asking state aid in controlling foul brood, etc.

Mutual benefit in buying supplies and marketing honey are objects of the association.

In former years honey production here has

been little considered; but now quite a number are going at it in dead earnest; and, if conditions are favorable, 1917 will note a large honey production for this valley. We produce a fine article of alfalfa, sweet clover, and sage.

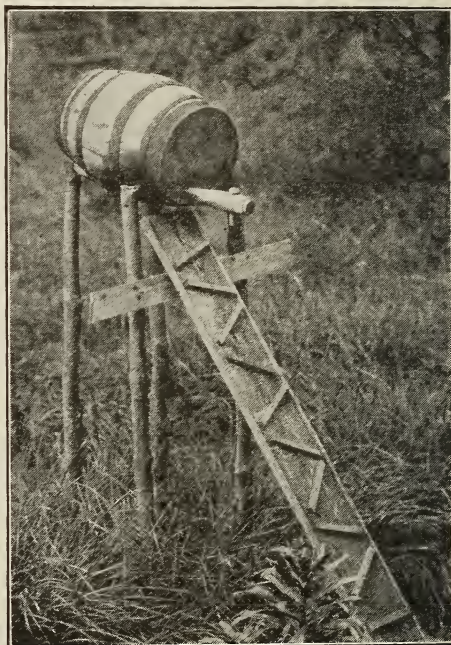
At the meeting an inventory showed 3000 colonies for the district, which will be more than doubled this year.

The past season developed our first foul brood, Mr. J. M. Thorn having to shake 100 colonies in July, which proved successful, and an average of 100 pounds extracted for the season after the treatment.

Hermiston, Ore.

Drip-board Method of Giving Bees Water

To provide my bees with water without the chance of losing any by drowning, I use the contrivance shown in the illustration. It is simply a keg held between four posts, with an unplanned board leading up to it. The keg is provided with a faucet which is opened only far enough for a constant



Device for watering bees.

drip to fall on the rough board, across which I nail some flat strips, while two other thin strips are nailed to the sides to prevent the water running off.

I regulate the drip to the need of the bees. When no brood-rearing is going on to any great extent a drop of water every twenty

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seconds will be all the bees require. It is not necessary for any water to remain standing between the cross-strips on the board. Once this remains wet, the bees will be able to get all the water they want. But it is an easy matter, of course, to open the cock a little more when the flow of water is considered insufficient.

For my small apiary I have to fill this keg only once every four or five weeks. In a large apiary a barrel should be used. Care must be taken that the drip-board stand in the shade. J. H. Hamelberg.

Soest, Holland.

All Plans O. K. On page 1161 E. G. Baldwin tells us what When the Honey's Coming in not to do in introducing queens by the honey method. My experience has been that any old method is O. K. when bees are gathering honey freely, and that no method is a success when no honey is coming in.

When I first tried the smoke method I was delighted. I thought I had found just what I had been wanting for years. I introduced a large number of queens with practically no losses; but in the fall, after the honey-flow was over, about 80 per cent of queens introduced were killed. I had the same experience with the honey method.

Last fall I went to an outyard, introduced 40 queens, and lost only one. About a week later, in exactly the same manner, I introduced in the same yard 25 in one day and lost 22 of them. Eight days later I removed all cells, and gave more queens by this same method and had them all accepted. I afterward introduced about 35 more queens in the same yard, with a loss of about half a dozen. In each case the old queen was removed, cells torn down eight days later, and the young queen given.

I had very little trouble with robbers, altho no honey was coming in. The last half-dozen queens given to the bees, I let the robbers get started while looking over the combs to see if they were queenless, and I fear some three or four of those hives are queenless now. J. M. Cutts.

Montgomery, Ala.

When Excluders are Necessary, and when They are Not For the successful production of bulk comb honey, excluders are very desirable if not an absolute necessity. As to sections, out of hundreds of thousands produced I have never found brood in more than two or three individual sections.

In the production of extracted honey it is no detriment to allow the queen full run of the supers during the early part of the sea-

son. There are always some queens that persist in laying in the super, so that, toward the latter part of the honey-flow, it is well to use the excluders in such cases.

As to whether excluders hinder the storing of honey in the supers, I have never been quite able to make up my mind. Very often I find a colony that is backward in storing surplus in the super thru an excluder that will pick up at once when the excluder is removed; then, again, side by side will be found two colonies of apparently the same strength—the one without an excluder moving very leisurely along, and the other with an excluder literally jamming every available cell full of honey, and crying for more space. Tho I find the excluder very valuable in the production of honey, particularly at the latter end of the flow, its chief value to me is its use in manipulating for increase and building up. Jos. J. Anderson.

Salem, Ida.

Catch Those Drones with an Alley Trap

In the Nov. 15th issue, page 1087, B. Palmer asks what becomes of the drones

after shaking for foul brood. Provide the hive that the bees are to be shaken into with a good Alley queen and drone trap, and see that it is well secured so no bees or drones can escape without going thru the trap. Just at night place the hive where it is to stand. Smoke the foul-brood colony well. Use a very little tobacco. Close the entrance for two or three minutes. Then shake the bees into the hive with the queen and drone trap on it and close it up. The drones are thus captured so they cannot go into other hives. J. G. French.

Vernon, Conn.

An Easy Method of Filling Combs with Syrup for Feeding

Giving colonies of sealed stores in spring is always recommended as the

best method to stimulate bees or replenish colonies short of stores by up-to-date beekeepers in spring. Having stores on hand for this purpose is not always possible; so some other means must be used. There has been a method used similar to this by filling empty combs with warm syrup (half and half) and placing the same in the hive next to the brood-nest in the evening. So far as stimulating is concerned I believe it surpasses sealed stores. Why this method is not advocated more I do not know unless the method of filling has been too slow or mussy. The following is my method:

I have a box that is made on the order of a Doolittle feeder—large enough to receive a Langstroth frame. I fill this within about

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an inch or $1\frac{1}{2}$ from the top and gradually push the comb toward the bottom. Pushing comb downward too fast does not allow the air to get out of the cells. One push downward fills every cell.

The box has galvanized sides $8\frac{1}{2}$ deep, $15\frac{1}{8}$ wide, $18\frac{1}{4}$ long, inside measurements. When tacking on these sides I used cigar-box nails every half-inch. The ends and bottom are made of half-inch lumber. Melted wax is poured along the inside edges. A cleat along the top edges is nailed outside, preventing the metal sides bulging out.

In filling combs in a wholesale manner a tank (or extractor) with a gate is placed on a platform over this box. Otherwise a dipper may be used.

J. H. Fisbeck.

St. Louis, Mo.



Deeper Brood-Chambers Rather than Wider Ones

If you have eight-frame hives and fixtures, and wish to change to a larger hive, don't buy ten-frame hives to get a larger brood-chamber. Get the eight-frame

Jumbo. The same applies to the ten-frame. This plan gives the increased brood-chamber capacity, and at the same time uses the old fixtures. In my yard I have twenty ten-frame Jumbo hives, and there is no contracting down to "as large as one's fist" in them.

Take, for comparison, a strong eight-frame colony, a strong ten-frame colony, and a strong ten-frame Jumbo. When the temperature was ten degrees above zero the eight-frame hive had a seven-range cluster. The width of the cluster was 9 inches; length, 7 inches, height, $7\frac{1}{2}$; cubic contents of space occupied by the cluster approximately 180 cubic inches.

The ten-frame standard hive had a seven-range cluster; the width of cluster which was 10 inches; length, 10 inches; height, 8 inches—contents of space occupied by cluster 380 cubic inches.

The ten-frame Jumbo cluster had a width of 13 inches; length, 16 inches; height, $11\frac{1}{2}$ inches—cubic contents 1150 inches. Some difference! This is why I am a convert to the large brood-chamber. I don't want them wider. I want them deeper.

Falmouth, Ky.

Virgil Weaver.



Ma says she knows why the bees do such a good job of housecleaning every spring. There's no drones in the hive to muck things up all the time.

YEARS ago, when I first started out in business, I consulted a lawyer in regard to some transaction. Very soon he said something like this:

"Mr. Root, did this man agree to do what you seem to think he ought to do?"

"Why, no; I do not think he did agree; but does it not look as if he ought to do so and so under the circumstances?"

His reply was something like this:

"Mr. Root, the man who does all he agrees to do is a very good man."

I made some protest, but had to give it up; and I have often found that the man who adheres strictly to the letter of what he has agreed to do *is* a very good man—that is, when you get acquainted with somebody whom you can actually depend on, thru thick and thin, it is pleasant to know such men, or, if you choose, such women. I know, of course, there is once in a while a man so tricky that he is very careful what he promises, and especially careful about putting it down in black and white, that he may slip out in some way, and be a bad man after all. This matter of divorces has been on my mind a good deal. I have just been thinking that, of all the agreements we make in this life, there is no other contract as sacred and solemn as the agreement before God between man and wife when they come into partnership together.

I recall the morning after Mrs. Root and I were married, over fifty years ago. Something seemed to say to me, altho I was not a professing Christian at the time, that a new era was just opening to both of us. We were to start with horses and carriage on a honeymoon trip, and we were waiting for the friends to get ready. We happened to be alone by ourselves. I put out my hand to her, and she looked smilingly up into my face while I spoke somewhat as follows. It was a boyish speech, but it was honest. Said I:

"Sue, the agreement between us two that we have just entered into is the most sacred and solemn step in our two lives. Let us fully consider the new relations that rest on the shoulders of both of us; and may God help us to bear with each other, and to bear with patience the new responsibilities that are going to rest on us two. May we two, thru thick and thin, for better or for worse,



What, therefore, God hath joined together, let not man put asunder.—MATT. 19:6.

cling to each other."

The carriage was ready about this time, and off we started; but I felt happy, and my conscience indorsed this little prayer (if it might so be called) as we started away.

As the sun came up, and we felt the inspiration of the autumn morning, I looked into the face of my young bride and took her hand while we sat there in the carriage, and a great joy came into my heart to think that she was going to be close by my side in the weeks, months, and years to come. For a year or two before our marriage I had walked twice a week or oftener about three miles to her father's home, sometimes thru mud and rain and sleet, just for the purpose of being with her a few hours; and now she was to be with me always—mine for ever, mine while life should last. May I be pardoned for saying that the dear little woman has most faithfully kept *her* part of the pledge year in and year out? Oh! what would I give if I could truthfully say, "I have done as well, or even approximately as well"?

I have always opposed divorces—at least ever since I started to follow the Master. A good many times it has been my privilege to plead with man and wife, sometimes successfully, but not always. I remember that years ago a man with whom I was pretty intimately acquainted had just decided to run away and leave his wife and children. He thought the provocation was sufficient. I tramped down to their home one Sunday morning, taking my Bible with me. I exhorted and protested, but it was with but little avail. Finally I asked them to kneel down with me in prayer. I prayed as well as I could, not only for the unhappy parents, but for the two or three children then present. The prayer, altho it was perhaps an awkward one, and ungrammatical, did the business. The husband and wife, with clasped hands, promised before God to start a new life; and the one who had been, perhaps indiscreetly, the cause of the trouble, promised to go away off and thus remove temptation. This man now has a beautiful little home and a fine farm, several children, and both the parents are in regular attendance, I believe, at the church where they belong.

Many times, when you come to know all

the circumstances, it looks very much as if the parties had *better* separate; but I do not think I have ever advised a separation. If even one of the two is a professing Christian, the troubles may almost always be fixed up.

The saddest part of the divorce business comes in where there are children. Oftentimes I have said to the parents, "These are your children. You are father and mother to them, and always will be. There is no power on earth to make it otherwise."

I have said to the children, "He is your father, and no power on earth can change it. A sacred obligation rests on you that can never be changed."

I said in substance the same thing to the father. I am glad that I cannot recall that there was ever any necessity of saying so much to the mother. Just imagine, if you please, the effect on the children when there is a quarrel between their parents. What a sad thing to contemplate! I have said, and say it again, for the sake of the *children* if for nothing else, stick together in some sort of fashion rather than separate.

Sometimes I am told by one or both, "God did not bring us together. It was just our own foolish blundering."

To this I reply, "My friends, you consented to this union before God. You asked God to witness, and the command is binding upon you. You *are* together—there is no getting rid of it. You are father and mother to the children that are an additional seal to the contract or bargain. They are your own children, and no power on earth can make it otherwise."

Many business houses at the present time say, in different ways, "Money back if you are not satisfied." That is, after you have received the goods and given them a test, if they do not prove exactly as represented or what you expected, you can send them back and have your money. My good friend, you *cannot* take a wife in that way. I do not know but the experiment has been tried by a class of people who call themselves "free lovers" or something of that sort; but it has never worked. Such plans are a scheme of the devil, and wreck and ruin follow. What are you going to do with children as the result of such a proceeding? The laws of man and laws of nature protest against such inventions.

Years ago we used to have a sort of lunch-room or restaurant for the benefit of employees, especially those who live too far away to go home to dinner. One day the woman in charge of the lunch-room called me in. Pointing to a low-lived-looking chap who sat at the table she said, "Mr. Root,

this fellow came in here and ordered dinner. As it was before dinnertime I went to work and got up a dinner for him as good as I know how, and now he says he has no money. What are you going to do about it?"

My first impulse was to hunt up a good club and tell him that unless he paid over the 25 cents for the dinner he had ordered I would "take it out of his hide." I think that must have been before I enlisted as a Christian. The more I thought it over the more I decided there was nothing *to* do. So I said, as meekly as I could, "My friend, you probably mean that the next time you come along here you will pay the 25 cents you owe us?"

Of course he gave the promise quite cheerfully. Now, this may be a homely illustration; but it strikes me that all mankind, from the least to the greatest, should regard the marriage contract something in the same way. It cannot be undone. There is no such thing as "money back if you are not satisfied" between man and wife.

Now, I confess, dear friends, this is quite a long preamble to a clipping from the *Sunday School Times*. If all our readers would subscribe to the *Times* I would not need to give so much space to extracts here.

An ideal nation will always do right. No nation is or has been ideal. We have not always done right. We have again and again violated treaties. We have broken our word. We have made promises and have not kept them. We are in no position to judge other nations. By what judgment we judge them we ourselves are condemned. We need to repent for our own misdoing and not play the Pharisee in any boast of superior national virtue.

The evils of divorce and the saloon will not exist in an ideal nation. Bishop Moreland, of Sacramento, says:

"The average for the nation is one divorce in twelve marriages; for the Far West, one to five. The highest record heretofore has been held by Japan, where the proportion was one to three prior to 1897. In that year Japan, determined to rise to a more decent civilization, adopted a uniform divorce law, and since then has never exceeded the rate of one to six.

"The census shows that in 1864, when the population of the United States was 30,000,000, there were 8551 divorces granted. In 1914, with a population of 90,000,000, the divorces numbered 110,759. The population has increased three times; divorce, twelve times. In a half-century our neighbor, Canada, allowed but 600 divorces, the United States 2,063,812. Over 20,000 Canadians crossed the border to obtain divorce in this country. Our evil example makes it harder for a sister Christian nation to maintain a pure family life. Forty per cent of the children in reformatories and orphanages of the Pacific Coast are offspring of divorced parents. Divorce is the darkest cloud on our American life."

And what boast has any nation that it can make when it suffers the liquor traffic to control its politics, to impoverish its wealth, and to debauch its life?

The nation needs God, not on its coins only, but also in its life.

The first paragraph attracted my attention. Is it really true that there is not a nation on the face of the earth that *always* does right? If so, I suppose we shall have to wait until we are assured that "*God's kingdom*" has come. The statement in the above, in regard to divorcees, is worse—far worse—than I supposed. May God be praised for the good record that Canada makes in this matter. Can somebody tell us how it comes about? If 20,000 Canadians have really crossed the borders in order to obtain divorcees which they *could not* get at home, may God have mercy on us. And now comes the astounding statement that 40 per cent of the children in reformatories are the result of divorced parents. We have been in the habit of thinking that the liquor traffic is the darkest cloud that shadows America; but the above would make it seem that this *may be* a mistake.

In conclusion let us consider that last paragraph, that we need God, not only on our coins, but also in the lives of our people.

"What God hath joined together, let not man put asunder."

After the above was in type my good friend, Rev. A. S. Gregg, of the Civic Reform Club, sent me the following clipping from the *Commercial Tribune*, Cincinnati:

The investigation conducted by Rev. Mr. Gregg has disclosed a deplorable condition in Ohio as regards divorcees. For every three marriages in the state last year one divorce was started; and for every six marriages one divorce was granted. A decade ago there was an average of one divorce to every twelve marriages. Lucas County shows one divorce to every four marriages.

It is also into the *causes* of divorce that Rev. Mr. Gregg proposes to make an investigation. In Ohio last year 299 divorcees were granted husbands on the grounds that their wives had been unfaithful. But only 196 divorcees were granted on the grounds that the husbands had been unfaithful.

Records show that wives obtained 3014 divorcees for absence and neglect while only 1354 were granted to husbands on the same allegations. On charges of drunkenness, 394 divorcees were granted wives, while only thirty-eight were given to the husbands of drunken wives. In suits which charged cruelty on the part of the husbands 1607 divorcees were granted to women while only 201 were granted to men who were mistreated by their wives.

PRAYING TO BE "SEEN OF MEN."

A good brother sends us an article, too long to print, in regard to that paper about "talking with Jesus:" but I will make just one brief extract, omitting his name for obvious reasons:

Having listened to prayer by a lady whose utterances were the embodiment of perfection in her choice of words, I regretfully learned afterward that this person merely prayed in public to be heard of men and women, and that her life was far from be-

ing blameless. The reaction at that time (before understanding prayer as I now do) placed me further away from churches where audible prayer was carried on, tho little understood as prayer is understood today.

The above not only hits me but it disturbs me quite a little. A good many times I am asked to lead in prayer in our prayer-meetings, and also am often asked to close with a brief word of prayer, etc. Down in our Florida home the superintendent of the Sunday-school usually, when announcing a hymn, says, "Brother So and So will lead in prayer at the close of the hymn." This gives the brother an opportunity to prepare himself; and I do believe it is a good plan all around to give any brother or sister a little opportunity to get ready. Now, in this mental preparation should we consider how our prayer may be taken by the audience, or how it will be taken by the Lord? and as I have been thinking it over my conscience has troubled me because I have thought too much of what the audience might think of my prayer, especially when among strangers. After praying over this very matter I have decided that a prayer before an audience should be a little different from one made while we are off alone by ourselves "talking with God." On several occasions I have been asked to lead in prayer quite unexpectedly; and quite often at such times I have found myself in no suitable frame of mind, if I may so express it, to lead in prayer. At such times you can hardly imagine how fervently my short prayer wells up, "Lord, help!" and the help comes. Perhaps it comes all the sooner because it is nearer the "Lord's prayer" than A. I. Root's prayer. I do not mean that I use the Lord's prayer as given in the Bible, but a prayer fitting the circumstances that the dear Savior furnished on "short notice;" and a feeling of happiness comes into my heart afterward because I have tried, at least once, to let the dear Savior speak instead of too much of my own poor self.

"DID GOD MAKE WOMAN TO BE MORALLY SUPERIOR TO MEN?"

The above is the title of a sixteen-page pamphlet by Prof. T. W. Shannon, of Delaware, Ohio. I copy one paragraph from the first page. You can get the whole of it from Prof. Shannon as above. The price is two for 5 cts.; ten or more, 2 cts. each.

In every land, in all ages, among all races, sages and saints alike—Jews and Gentiles, Mohammedans, Buddhists and Christians, barbarous and civilized peoples—all have held a higher standard of morals for women than for men. Many more women

accept Christ and unite with the church than men. In our penal institutions seven or eight times as many men as women are found. Men swear a hundred times where women swear once; they use a ton of tobacco where women use a pound; they drink a barrel of whisky where women drink a pint; they sow their "wild oats" where women sow purity and love. Are these social and moral differences conclusive demonstrations that men are inherently more depraved than women, and that women are inherently more moral than men? For ages man's selfish interests have led him to affirm this to be true. During the same period of time woman's acquiescent nature and fondness for compliments have led her to accept this general opinion. Never in the history of human cupidity was a cleverer trick pulled off by man.

NATURE'S SKILLED ARTISANS.

A few evenings ago our neighbor, Mr. E. B. Rood, said in prayer-meeting, by way of illustration, that the point of the finest needle, under the microscope, looked like an awkward unfinished crow-bar in comparison with the sting of a bee. He was comparing God's work with man's. The work of the bee in creating the waxy cells has often been commented on. Well, our old friend A. T. Cook has just given me another surprise along in the same line. See below:

We have a colony of wild beavers about 12 miles east of here. Nobody seems to know where they came from.

I went to see their work, and brought home souvenirs. I enclose a few chips.

They have built a dam at the outlet of a lake, raising the water fully 3 feet.

Scores of trees are cut down. Many of them measure 7 to 10 inches in diameter. Their home is in one of the wildest places I have ever seen. Their dam is 40 or 50 feet long. A. T. Cook.

Hyde Park, New York, Jan. 4.

Were I not told these chips were the work of beavers I should say they were certainly made by a skilled workman with the keenest of tools, well tempered and sharpened for the work. "Manifold are thy wonderful works, O Lord."

WILBUR AND ORVILLE WRIGHT.

As I was with the Wright Brothers when they made their first success in getting the machine to turn around and come back to the starting-place, you can realize somewhat the pain I felt when I saw, as the years have passed, efforts to rob them of their hard-earned title to being the originators of the art of flying. In view of this you may realize how it rejoiced my heart to find the following in *Collier's* for Jan. 6:

THE TITLE TO AN HONOR.

We should have thought that, if the authority of the great inventions of history were investigated, the one upon which the least shadow of doubt could be cast would be the invention of the aeroplane by Orville and Wilbur Wright. Of course there will

always be a certain number of whimsical persons who instinctively resent giving credit where credit is due, and who, when anything big is done in the world, begin to look around for a village obscurity "who really conceived the idea." They like to be cheated and fooled. They are the same kind of people who still believe in the Keely motor, think Dr. Cook discovered the North Pole, Bacon wrote Shakespeare's plays, and Rostand stole "Cyrano de Bergerac" from a Chicago dealer in suburban real estate. But it is surprising to find that so well informed a man as Dr. Eliot—to whose judgment on any subject we usually defer—is reported to have ascribed the creation of the flying machine to Professor Langley. Professor Langley was a brilliant, ingenious, and modest scientist. We mean no disrespect to his memory when we say that Langley was, no more than Darius Green, the inventor of the essential contrivances for flying.

The attempt to discredit the originality of the Wrights, and to rob two fine Americans of an honor that will outlive all marble, started with a group of men who took out of the Smithsonian Institution the old Langley machine which had been wrecked in launching, changed the shape and weight of the ribs, the shape of the propellers, the controlling device, the starting and landing gear, added a number of devices which were peculiarly the inventions of the Wrights, secured a competent press agent, and turned the machine over to a skilled aeronaut, who, after much effort, succeeded in making the flying-machine—not fly—but *hop*. Between this confection and the Wright aeroplane as much difference exists as between a squat toad and a swallow. And, bad as it was, this was not the original Langley machine, but an industrious improvement on it. The old Langley machine, we are told on good authority, "failed to fly because the wings collapsed from not being strong enough to carry the strain; even if it had been strong enough it would not have been a practical flying-machine, because it had no means of control except in a perfect calm; it was the discovery of a means of control, the solution of the problem of equilibrium by the Wright brothers—and by them alone—that conquered the domain of air for mankind and brought in the age of flying."

Langley's unsuccessful attempts were made only after the Wrights had completed their invention and progressed far in the actual use of it. They had proved out their system of control by gliding flights in 1902, and had thereby solved the problem of human flight, and they filed their application for their fundamental patent in March, 1903. It was not until more than six months after the latter date that Langley made his unsuccessful attempts at flying—the only ones that he did make. These attempts were made on Oct. 7 and Dec. 8, 1903. They proved nothing but failures, and added nothing to the contribution that the Wrights had made to the science in the previous year. On December 17, 1903, the Wrights again made completely successful flights, but this time with a power-driven machine, and as a result of their quiet, unadvertised, and well-directed work.

Collier's takes a special interest in this question because it had the good fortune to be among the first of American publications to believe these two modest young men had solved the problem of aviation which had baffled inventors for centuries; and it does not intend to stand by in silence while a predatory attempt is made on the just renown of the two great geniuses who conceived the idea of the aeroplane and worked it out with infinite patience and self-effacement. The fact that these two men disdained advertising their own achievement is all the more reason why their countrymen should defend their reputation. The example they gave in the

steady pursuit of their object without haste and without pause, their refusal to put out reports of their incomplete work, their avoidance of publicity, is as refreshing as anything we know in an age when inventors get almost as much space in the newspapers as chorus girls. There never was a finer character than Wilbur Wright. He was the American we read about more often in books than meet in actual life. It was delightful to observe this composed, shrewd, humorous, well-balanced product of Ohio coming out of his workshop to meet with level eyes and imperturbable smile the gushing world, putting his own and nobody else's value on what he saw and heard, and treating even flattery with perfect good nature. We don't think the American people will consent to see the memory of such a man deprived of any of the fame that belongs to it, or that they will hesitate to display, if the need arise, their gratitude for the honor the Wrights have brought to their country.

Misinformation cannot long obscure this fact of history—that the Wright brothers were the first persons to leave the earth in a mechanically propelled plane and to invent the means of controlling that plane.



HEALTH NOTES

"THE HIGH COST OF"—BUTTER.

By some means or other, Mrs. Root and I have for years past had a sort of notion that it is almost as "wicked" to buy "oleo" in place of butter as to buy glucose in bottles in place of honey; but when the boycotting women of Cleveland, Ohio, advised using oleo until dairymen came down a little, it was quite a jolt. Well, down here butter has been fifty cents; and when we got some that was rancid, Mrs. Root said "try oleo," which was only 33 cents. To my surprise I liked it just as well, and it seemed just as wholesome. When Mrs. Root found most people down here were also using it she didn't feel ashamed any more to go into the grocery and ask for it. Well, now, read the following from the Jacksonville *Times-Union*:

The business managers of the homes of Jacksonville will meet tonight for a further discussion of the high cost of living. Mere discussion is not entirely unavailing, but discussion accompanied by action is far more effective. The price charged for butter is outrageous. Agitation has somewhat lowered the price of eggs, but the price of butter is fully as oppressive.

The women of Jacksonville can take action tonight in a way that, if followed up elsewhere, will reduce the price of butter ten cents a pound. At least ten cents of the price of butter is a matter of law. It is due to a law enacted for no other purpose than to make the people pay an exorbitant price for it.

A bill is now before congress to have this tax repealed. There is a special reason why the people of the South should advocate its repeal. It discriminates against Southern products. Last year 30,000,000 pounds of peanut and cotton-seed oils were used in the production of margarine. If the

In connection with the above it may be well to state that GLEANINGS was privileged to give the first account, by an eye witness, of their invention of any magazine or periodical in the world. See GLEANINGS for January 1, 1905, p. 32.

Just a word in closing about Wilbur Wright. We had many discussions during the days I was with them in regard to the value to the world of their invention. I insisted it would result in something like Columbus' discovery of America, etc., but Wilbur, with a sad, far-away look on his face, declared its first use would be for war purposes. God knows he had no sympathy for anything along that line. As the years have passed, and we hear of the invention only in connection with war, I am reminded of his prophecy.

tax intended to decrease its production were repealed, much more of it would be produced and more of these Southern products would be used in its manufacture.

Margarine is rigidly inspected, and those who buy it know it is clean. They don't know this of the butter they buy. They also know it is healthful. We are sure State Chemist Rose will pardon us for quoting a remark he made in the *Times-Union* office a year ago or more when asked about margarine. He said: "When I am at home in Tallahassee I eat butter because I know it is clean and fresh. When I am traveling I always eat margarine because I know the inspection laws guarantee its cleanliness, and I don't know anything about the butter."

There are some who are prejudiced against this product; but we do not know why. There are some who like butter better, and others who do not wish to appear to economize. But this matters not at all. There are some who eat margarine, and the number of those who use it would be increased if the tax were taken off and they could get it cheaper. Those who use it would not use butter or would use less of it. With a smaller demand for butter the price would decline, and those who prefer it would be able to buy it for much less than they have to pay now.

If the Women's Club would indorse the Aswell bill for the repeal of the tax on margarine and of the unreasonable restrictions that hamper its sale, and that were imposed for the purpose of hampering its sale in order that the dairymen might get higher prices for butter, they would greatly help in the passage of the bill; and by giving such people as would use it a cheap substitute for butter they would reduce the price of butter.

I confess it is entirely new to me that "margarine," as they call it, is a vegetable product, or at least largely so. "Thirty million pounds!" Dear me! Where is Dr. Kellogg and the Michigan sanitarium? Why have they not, years

ago, advised a *vegetable butter* instead of animal? Nuts has been their forte—at least largely. Is it really true the farmers of our land have been, for selfish interests, putting a burden on us down here? I should like to hear from our good friends of *The Rural New-Yorker*.

CORN MEAL, ITS FOOD VALUE, AND SOMETHING ABOUT THE HIGH COST OF LIVING.

The following I clip from the Medina County (Ohio) *Gazette*. It may not all be exactly true, but it certainly is *largely* true.

In these times of the high cost of living, and particularly of the heights to which the prices of wheat and flour have soared, the average American loses sight of the value of corn as food.

Corn is cheap, comparatively. Wheat is high, very high. We have much corn. We have little wheat. We have raised three thousand million bushels of corn in one crop. The greatest crop of wheat we ever produced was one thousand million bushels. Of the crop this year our yield of corn is four and a half times that of wheat.

Dr. Barnard tells us cornmeal at three cents a pound is equal in value to two loaves of wheat bread.

Based on food value, corn in the form of meal or hominy is the cheapest foodstuff obtainable today.

The South knows corn. To the North and West it is little known, comparatively.

Again, Dr. Barnard tells us three cents' worth of cornmeal contains as much nutriment as 91 cents' worth of eggs at 50 cents a dozen, or 56 cents' worth of round steak for which you pay 30 cents a pound.

The high cost of living touches every pocketbook. If you would lighten the strain on your purse, study the virtues of corn.

Today the American housewife uses 10 pounds of wheat flour to one pound of corn—corn of which we have an ample quantity, and wheat of which there is a scarcity that approaches famine.

Cornmeal at three cents a pound is equal in food value to six pounds of potatoes, for which the housekeeper today pays 20 cents.

It is equal to a pound of cheese, for which she pays 3 cents or more.

It is equal to six pounds of bananas, 11 pounds of oranges, 14 pounds of cabbage.

The corn that we cook into corn cakes, that we eat as hominy and mush, costs only one-tenth as much as some of our breakfast foods.

Cornmeal and hominy contain twice as much fat as any other cereal except oats, and the world knows the worth of oatmeal.

Think of corn, study corn, talk of corn. The result will be to your benefit and to the benefit of America.

Eat corn bread. Get to know the corn bread of the South. Have a real Southerner serve corn bread to you once, and the wheaten loaf no longer will have its present appeal.

Know the corn pone, if opportunity offers. Know hominy. Know the grain of all grains, corn.

The statement in the above in regard to eggs may be a surprise to many; but it is quite in accord with some experiments of my own toward 50 years ago, reported in the Home papers, then just started. I made an entire meal of differ-

ent articles of food, figured the cost, and then did a good hard day's work with the bees, garden, etc., to see how I held out. One morning my breakfast was not a thing but eggs. My impression was I ate nearly a dozen; at any rate, it was one of the most expensive meals, and I became faint and hungry before dinner. The meal that gave most endurance for the money was *beans*. I think corn meal was a close second. All sorts of canned foods bought at the groceries figured in cost "away up."

"ENSEROL," BORIC ACID, ETC., FOR THE EYE AND EAR.

Some time ago I mentioned a medicine called "enserol" that was sold at \$2.50 an ounce, or something like that, and that our Ohio Health Department had pronounced it simply boric acid in solution, and that the patent-medicine quack was charging \$2.50 for something which could be had at the drugstore for five cents. This enserol, in connection with glycerine, was recommended for deafness. Some time ago when I got up one morning one of my eyes was paining me, and I thought something had got into it. I called our family doctor, and he made a careful examination, but said he could find nothing; but he suggested a little boric acid in solution might help, and the relief was instantaneous. Since then I have found our neighbors have been using the same thing for troubles with the eye. I was reminded of the above by the clipping below which I take from the Cleveland *Plain Dealer*. I give it here because it tells just how strong a solution to use.

"Pink eye," or acute epidemic conjunctivitis, is a common disease of the eye, and is caused by a germ. This may be treated by closing the eye and then applying a lotion consisting of ten grains of boric acid to one ounce of boiled water. The powders should be dissolved in the water while it is hot.

HONEY IN PLACE OF SUGAR.

Dr. J. H. Kellogg gives the following in *Good Health* for December:

HONEY AS A DIABETIC FOOD.

A Russian physician, Davidoff, reports an observation of seven diabetic patients in whom he found that great benefit followed the substitution of honey for sugar and other sweets. The sugar of the urine was diminished and acidosis was prevented.

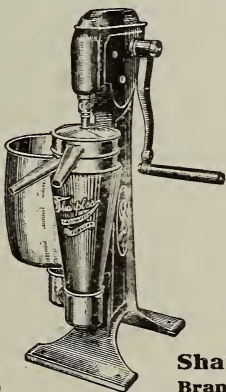
This reminds us of what John Burroughs once said about honey:

"It is a more wholesome food than sugar, and modern confectionery is poison beside it. Besides grape sugar, honey contains manna, mucilage, pollen, acid, and other vegetable odoriferous substances and juices. It is a sugar with a kind of wild natural bread added."

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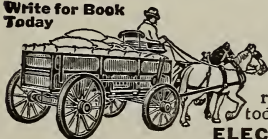
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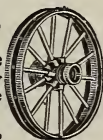
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Have you ever enjoyed having the friendly Wrens and Bluebirds for neighbors? The little fellows will gladly live near you if you will provide homes for them. And they are such jolly neighbors, singing their songs, keeping your garden and trees free from destructive bugs and worms, raising their hungry families and generally enjoying life. You will find much pleasure in watching these friendly birds. The children, too, will take a keen interest in these Nature folk, unconsciously learning the lessons of gentleness, consideration and the love and appreciation of all things in Nature.

Help save the birds by putting up, about your home,

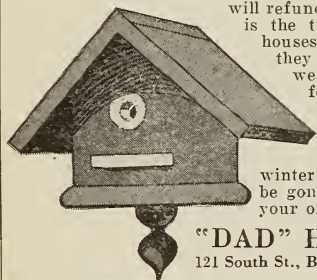
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is the time to put the houses up, so that they will get a little weather-beaten before the birds come.

I have about 100 houses. I have made this winter. They will be gone soon, so send your order NOW.



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MAKING THE WORK COUNT

Continued from page 260

that the wires almost instantly sink to the center of the foundation; then when the current is cut off and the wire has cooled it is almost impossible to tell from which side it went in. The full current can not be used, of course. A small transformer, such as is used for choking the ordinary lighting current down to about five or six volts for running children's toys, is just about right. Or, as mentioned by E. L. Sechrist, p. 316, April 15, 1916, the current may first be run thru an electrical flat-iron to reduce it to the proper amount. With neither at hand, enough heavy wire may be coiled up for resistance to give the desired amount of reduction.

If there is no electric current from a lighting circuit, electricity may still be used. G. Herman Peterson, of Deerwood, Minn., a few weeks ago sent in the imbedding-device shown in Fig. 10. Four dry cells are used to heat a single strand of wire. The current enters thru the prong at one end of the device, and out thru the one at the other end. The two prongs in the center are merely to press the wire into the wax. The device is held in position with the two outside prongs both resting on the wire. The button is pushed, and the wire immediately heats and melts its way into the foundation. In 1903 and '04 The A. I. Root Company sold an outfit almost identical with this, but it was found that the dry cells deteriorated very rapidly under the heavy strain imposed on them. I find that four dry cells, testing 20 amperes each, after fastening all four wires in 100 frames deteriorate in strength to 15 amperes each. However, as a matter of fact, dry cells are much more efficient than they were ten or twelve years ago. By this plan, heating a single strand of wire at a time, it takes only three minutes for imbedding the wires in ten frames.



Continued from page 264

ized farming, and only by specializing have people been successful as a rule.

In conclusion it is but fair to say that beekeepers, fruitmen, dairymen, and others can and are making a living, or a little more, depending upon their ability and knowledge of their business; and that there is room for many more people of the right kind in all lines right here in this valley. But money does not grow on trees and bushes, nor in hives, here, any more than it does in the eastern states. The San Joaquin Valley will stand on her own merits without

FROM THE FIELD OF EXPERIENCE

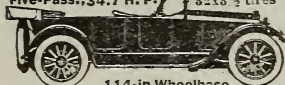
any "boost" advertising. The truth is enough. She will bear the closest investigation by those who really desire to do their share as producers. But let the man beware who attempts to make a living from the products which are daily going to waste in this valley.

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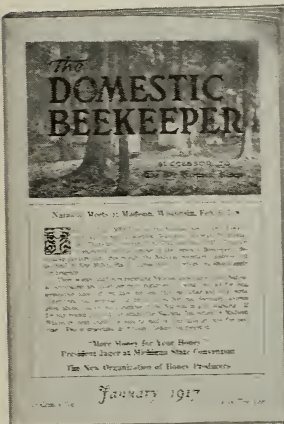
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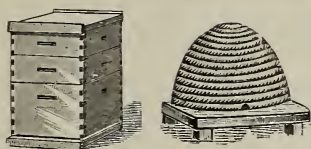
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Four reasons why you should use our queens: 1st—They are first-class honey-gatherers. 2d—They are the most vigorous, and highly resistant to foul brood. 3d—The Imported bees (which ours were reared from) are the gentlest bees known. 4th—The most modern and learned beemen in the world today (the *Roots*) use the three-bands. **WHY?** Because they are best.

We have had 25 years of experience in rearing queens, having started with Doolittle, and such men. We have 1000 nuclei, which makes it possible for us to fill orders promptly. Three expert queen-breeders have charge of nuclei. So we do not overwork, which gives us ample time to improve our stock. None but first-class queens are mailed. We give a first-quality queen at a medium price, and guarantee perfect satisfaction and safe delivery.

Untested	One,	\$.75	Six,	\$ 4.25	Twelve,	\$ 8.00
Selected untested	One,	1.00	Six,	4.75	Twelve,	9.00
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Gentlemen:—Will want more of your three-pound packages of bees with queens in spring. The two I bought of you last May did all right: one package made 185 sections of honey and gave one swarm and the other made 296 sections and gave two swarms. I am well pleased.

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Swarms of Bees Without Queens April First Delivery

1-lb. packages, \$1.25 each;	25 to 50, \$1.22½ each;	50 to 100 and up, \$1.20 each
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Untested	75 cts. each, \$65.00 per 100	Tested	\$1.25 each, \$110 per 100
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Queens' wings clipped free of charge.

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LARGEST AND MOST SUCCESSFUL SHIPPERS OF BEES IN PACKAGES

M. C. BERRY & COMPANY, Hayneville, Alabama, U. S. A.

BEEKEEPERS' SUPPLIES

Send for new 1917 price list now ready. We are also in the market at all times for extracted and comb honey in any quantity. Give us a chance to bid on your supplies. We can save you money.

**The M. C. Silsbee Co., Haskinsville, N. Y.
P. O., Cohocton, N. Y., Rt. 3.**

FRUIT GROWING and BEEKEEPING

are two closely allied occupations. Beekeepers should read **"THE SOUTHERN FRUIT GROWER"** which treats on all the phases of successful fruit-growing, also gardening, etc. Established for more than 20 years. Edited by Robert Sparks Walker. 50c per year; 3 years for \$1, or sample copy sent free to those who are interested. Address

**THE SOUTHERN FRUIT GROWER
Chattanooga, Tenn.**

Bee Line Bees and Queens for Quality . . . Service

Our Italians are hustlers, gentle to handle, cap their honey white, are very resistant to European foul brood, and are very handsome bees to see. In fact, they are second-to-none bees.

Satisfaction and safe arrival are guaranteed. Orders are booked now and bees shipped when wanted.

Bees by the pound are ready for shipment now. Prices quoted are without queens.

1-lb. package, \$1.50; 6, \$ 8.50; 12, \$16.00; 25, \$33.00; 50, \$ 65.00; 100, \$125.00

2-lb. package, 2.50; 6, 15.00; 12, 29.50; 25, 58.50; 50, 116.00; 100, 225.00

With each shipment of bees we send printed instructions as to how to build them into full colonies.

Queens.—We have wintered over a lot of fine late fall-reared queens. Should you want a tested queen early we have them. We also will soon be sending out this season's reared untested queens. All of the queens we send out are sent out under an iron-clad GUARANTEE to satisfy or they will be replaced, or your money you paid us for them refunded. Prices for queens till May 10th.

Golden Italian and three-banded Italian.

Untested, 1 for \$1.00; six for \$ 5.50; twelve for \$10.00; 100 for \$75.00

Tested 1 for 1.25; six for 6.50; twelve for 12.00;

Select tested 2.00; six for 10.00; twelve for 18.00;

With each shipment of bees and queens we send state entomologist's health certificate. Any queens that we send out that should prove mismated will be replaced when returned to us.

Our three-banded Italians again last fall, 1916, captured the first honors at the State Fair of Texas. Please remember that there are no better bees and queens than what we have, and we are prepared to care for your orders promptly.

B. M. Caraway, Mathis, Texas

Bee Line Apiaries

Full Values in "Falcon" Beekeepers' Supplies

For the last forty odd years during our manufacture of "FALCON" supplies it has been our endeavor to place upon the market the very best possible line of supplies, and we pride ourselves in having accomplished this. "FALCON" supplies have not only been recognized as the best in this country, but also a leader in other countries. Nothing expresses the superiority of the "FALCON" ware better than the many kind and pleasing words we receive from our satisfied customers, and the ever-increasing demand for "FALCON" supplies.

The season is drawing nearer and beekeepers should endeavor to order early. By making up your wants now you will be better fitted to go into the season with a view of not only obtaining a bigger crop but to facilitate matters thruout the season. If you will make up a list of requirements for quotation we shall be glad to quote.

Red Catalog, postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

The Proof of the Pudding is in the Eating

The quality of Murry's queens and bees is shown in the increasing demand for them. Capacity of queen yards doubled last year and again this season. Advance orders up to March 5th nearly as many as total sales last year. Many old customers are doubling their orders for this season. Why? Because they get a square deal.

Three-banded Italians and Golden Italians. Orders filled by return mail. Safe arrival and satisfaction guaranteed. No disease. Health certificate with each shipment of bees or queens.

Prices	March 15th to May 1st		
Queens	1	6	12
Untested	\$1.00	\$ 5.50	\$10.00
Tested	1.25	6.50	12.00
Select tested	2.00	10.00	18.00
Breeders	5.00 to 10.00 each, any time.		

Prices	May 1st to Nov. 15th			
Queens	1	6	12	100
Untested ...	\$.75	\$4.00	\$ 7.50	\$60.00
Tested	1.00	5.50	10.00	
Select tested	1.50	8.00	15.00	

For nuclei and pound packages, see March issue of this journal, or write for circular.

H. D. Murry, Mathis, Texas

Quality . . . Service System

We quote the following prices for April and May:

	1	6	12
Untested	\$1.50	\$ 7.50	\$12.00
Tested	2.00	10.50	18.00
Select Tested ..	\$3.00	Select Breeder ..	\$5.00
Extra Breeder .. \$10.00			
	1	6	12
1-lb. Bees	\$1.50	\$ 8.00	\$15.00
2-lb. Bees	2.50	14.00	27.00
3-lb. Bees	3.25	18.50	35.00
	1	6	12
1-Frame Nuclei.	\$2.00	\$10.50	\$18.00
2-Frame Nuclei.	2.50	12.00	22.00
3-Frame Nuclei.	3.50	20.00	37.00
5-Frame Nuclei.	5.00	22.00	40.00

No queen furnished at the above prices on packages and nuclei. Select kind of queen and add her price, no charge made for clipping.

We guarantee safe arrival on bees and queens in the United States and Canada. We are in a position to furnish price on both bees and queens in large lots. OUR stock is the finest that can be had. We guarantee every queen to be purely mated, or we will replace same by return mail, all orders filled promptly. Our mail and express service is the best, having 24 out-going trains daily.

J. E. Marchant Bee & Honey Co.
Columbus, Ga., U. S. A.

The quick center for deliveries.
A trial will convince you.



If You Need Queens for Good Results We Have Them.

As Foul-brood Resisters none are better. . TRY THEM.

GOLDEN QUEENS.

1 Untested, \$1.00; six, \$5.00; twelve, \$ 9.00
1 Tested, 1.50; six, 8.00; twelve, 15.00

THREE BAND QUEENS.

1 Untested \$.75; six, \$4.00 || 1 Tested | 1.00; six, 5.00 |

NUCLEI THREE BAND ONLY.

1 Frame with Untested Queen, \$2.50; six, \$15.00
2 Frame with Untested Queen, 3.50; six, 18.00
3 Frame with Untested Queen, 4.00; six, 20.00

If Tested Queens are wanted add 50c extra to nuclei. Satisfaction guaranteed.

W. J. Littlefield, P. O. Box 582, Little Rock, Ark.

BY RETURN MAIL

Choice Tested Queens, \$1.00 each, reared last fall and wintered in four-frame nuclei. Queens that give satisfaction, bees that get the honey, our strain of three-band Italians. No disease in this locality. Satisfaction guaranteed on all queens. Untested queens in April and May, single queen, \$1.00; \$9.00 per doz.

J. W. K. Shaw & Co., Loreauville, La.

BEES

If you are thinking of buying bees this spring, we would be pleased to hear from you. We furnish full and nucleus colonies, bees by the pound, and queens.

A strong colony of Italian bees with a tested Italian queen, in a new 8 fr. D. T. Hive, complete with super, for \$11.00. Tested Italian queens \$1.50. Untested \$1.10.

We have 700 colonies of bees, producing tons of honey, and know the value of good stock.

Our catalog of bee supplies, honey-jars, and everything a beekeeper uses, mailed upon request.

I. J. Stringham, 105 Park Pl., N. Y.
Home Apiary: Glen Cove, L. I.

AT BOSTON

New England beekeepers will find everything in the way of supplies they will need the coming season. Place your orders early and avoid the rush. Send for catalog.

H. H. JEPSON, 182 Friend St.

SOUTHERN-BRED BEES AND QUEENS

REARED IN THE GULF COAST COUNTRY

THREE-BANDED ITALIANS. We are breeding from the best selected from ELEVEN YARDS. Ten per cent discount on all orders received 30 days before shipment is to be made. We believe that there is a BRIGHT FUTURE before the Northern beekeeper in making up his winter loss and strengthening up his weak colonies by getting bees from the South in 1 and 2 lb. packages; and you can always have your queens sent safely this way. Every beekeeper knows what it means to have strong colonies at the commencement of the honey-flow. Every northern beekeeper ought to try from 2 to 5 packages this year. It will not cost you much, and may mean much to you in the FUTURE. We guarantee safe arrival on all bees in 6 days of here. Reference, The Guaranty State Bank, Robstown, Texas.

	1	6	12	50		Pound packages of Bees.				
Untested ...	\$1.00	\$ 5.50	\$10.00	\$38.00		1	6	12	25	50
Tested	1.25	6.50	12.00	45.00	1 lb.	\$1.50	\$ 8.50	\$16.00	\$33.00	\$ 65.00
Select Tested	2.00	10.00	18.00	65.00	2 lb.	2.50	15.00	29.50	58.00	115.00

Let us know your wants. Circular free.

Nueces Valley Apiaries Calallen, Nueces Co., Texas



BEES and QUEENS



We wish to offer to the readers of "Gleanings" a chance to procure some of our fine stock of bees. Untested queens, March, April, May and June, \$1.00 each, \$5.00 for 6, \$9.00 per dozen. Lots of 25 to 100, at 70 cents each. For larger quantities ask for prices. Best tested queens \$2.00 each. Three races only—Three Band, Golden Italians, and Carniolans, reared in separate yards.

Bees by the pound in combless packages \$1.50 per lb.; 5 to 10 lb. lots, \$1.25 per lb. In lots of 25 to 100 lbs., \$1.00 per lb. Safe arrival and reasonable satisfaction guaranteed. Our shipping facilities are good and promptness our motto.

THE CRESMER MANUFACTURING COMPANY, Bee Department, Riverside, Cal.



DOOLITTLE & CLARK

will have some choice breeding queens ready for shipment May 1. Prices: \$2.50, \$5, and \$10.

Send for circular.

Marietta. Onondaga Co., N. Y.

Increase Your Honey Crop

by introducing some of Leininger's strain of Italian Queens which have a record of 30 years as to honey-gathering qualities and gentleness are unexcelled. Disease has never appeared in our apiaries. Queens will be ready June the first. Untested, each, \$1; 6, \$5. Tested, each \$1.25; 6, \$5.50. Breeders, \$5.

FRED LEININGER & SON, Delphos, Ohio

ARCHDEKIN'S Fine Italian QUEENS and Combless Bees

April, May, June, queens, warranted purely mated \$1.00 each, 6 for \$5.00, doz., \$9.00. Bees per lb. \$1.25. With untested queen, \$2.00 per lb. I have originated a package light, but strong. Saves you bees and express. My guarantee is prompt shipment, safe arrival, perfect satisfaction. No disease.

Small deposit books your order.

J. F. Archdekin, Bordlonville, Louisiana

In the Beginning is where Quality Starts
The Same Old Slogan for 1917

Untested Queens, \$1; Tested, \$2; Sel. Tested, \$3

Deliveries begin early in May,
and orders filled in rotation.

Geo. W. Phillips, . . . Lebanon, Ohio

CANDY

Bees sometimes starve with plenty of honey in the hive. Why not avoid this risk by placing a plate or two of candy on the frames when you pack for winter? It is a good life insurance. Send for circular also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

Notice to Beekeepers

We are now booking orders for our 3-banded Italian queens and combless packages, and will furnish them during April, May, and June at the following prices:

Prices of Combless Packages Without Queens*

Size 1-lb. each.....\$1.35
Size 2-lb. each.....2.35
Size 3-lb. each.....3.35

Three-banded Italian Queens for April, May and June

Untested, each.....\$ 1.00 Tested, each.....\$ 1.50
Untested, 6.....4.50 Tested, 6.....8.00
Untested, 12.....8.00 Tested, 12.....15.00
Untested, 100.....65.00 Tested, 100.....100.00

Select tested, \$2.00; breeders, \$3.00

* In lots of over one dozen packages get our prices. If queens are wanted, add wholesale price and state kind.

We have just invented a new-style cage for shipping bees, for which patent has been applied. This cage allows the queen to lay while on the trip, which gives the purchaser from three to seven days' advantage of the old-style cage. It is almost equal to a colony of bees. With every order for 100 pounds of bees we will give one of these packages with a tested queen free. We have only one dozen of these cages, and will not put them on the market till 1918, as our stock of cages was made up before we evolved the new cage.

Our Mr. A. B. Marchant has retired from the production of honey and will manage our yards for the package and queen trade. Therefore, we will be in a better position to fill all orders with dispatch. Having doubled our capacity we believe we can fill all orders the day they are due. We have introduced new blood in all our yards, and we have a strain of these second to none. Our packages are shipped the same day they are caged. Our bees for our packages are all reared above an excluder; therefore, we ship nothing but young bees, as young bees stand the trip better than older ones. We guarantee freedom from all diseases and safe arrival in the United States and Canada. Place your orders early, as first come first served. Write for prices on large orders.

Marchant Brothers, Union Springs, Alabama



Old Reliable
Three-banded



ITALIAN QUEENS

Will book orders now. Untested
Queens ready to mail April 1.

As I am located in the southern part of the state where we have an early spring, I can rear *Queens of High Quality* much earlier than most other breeders, and as I am a honey producer as well as a queen-breeder, I believe I am in a position to know the value of good queens. I have never had a case of foul brood in any of my colonies. If you want queens that are exceptionally vigorous and prolific, that produce bees that are gentle and the best of honey-gatherers, let me book your order. Will guarantee safe arrival in the United States and Canada. Send for free circular and price list.

Untested, \$1.00; 6, \$5.00; 12, \$ 9.00
Tested, 1.25; 6, 6.50; 12, 12.50

JOHN G. MILLER

723 C St., Corpus Christi, Texas

QUEENS

Quirin's Improved Superior Italian Bees and Queens. They are Northern Bred and Hardy. . 25 Years a Queen-breeder.

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.00	5.00	9.00	.75	4.00	7.00
Tested.....	1.50	8.00	15.00	1.00	5.00	9.00
Select tested.....	2.00	10.00	18.00	1.50	8.00	15.00
2-comb nuclei.....	2.50	14.00	25.00	2.25	12.00	22.00
3-comb nuclei.....	3.50	20.00	35.00	3.25	18.00	32.00
8-frame colonies.....	6.00	30.00		5.00	25.00	
10-frame colonies.....	7.50	38.00		6.50	32.00	
1-2 lb. pkg. bees.....	1.50	7.00		1.00	5.00	
1-lb. pkg. bees.....	2.00	10.00		1.50	8.00	

BREEDERS.—The cream selected from our entire stock of outyards; nothing better. These breeders, \$5.00 each.

Can furnish bees on Danzenbaker and L. or Hoffman frames.

Above price on bees by pound, nuclei, and colonies does not include queen. You are to select such queen as you wish with the bees, and add the price.

No bees by pound sent out till first of June. Also nuclei and colonies, if wanted before June 1, add 25 per cent to price in table.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now. Reference any large supply dealer or any bank having Dunn's reference book.

H. G. Quirin, Bellevue, Ohio

Three-band and Golden Italians



The Secret of Success in beekeeping is to keep your colonies strong. To do this you must have good healthy laying queens.

Untested.....\$.75; 6, \$4.25; 12, \$ 8.00
Select unt.....1.00; 6, 5.00; 12, 9.00
Tested.....1.50; 6, 8.00; 12, 15.00
Select tested.....2.00

Safe delivery guaranteed. We solicit your order.

E. A. Simmons, Greenville, Ala.

Beginner's Book of 28 Pages, Free

Also our 44-page Bee-supply Catalog for 1917 is ready for mailing. Ask for your copy now.

OUR PRICES ON BEES AND QUEENS: 1 lb. of bees with queen, \$2.25; 10 lbs. \$20.50; 100 lbs., \$190.00; 1 frame with queen, \$2.00; full colonies, one-story hive included, \$8.75; untested queens, 75c each. Our complete price list free, and safe delivery guaranteed.

The Deroy Taylor Company, Newark, N. Y.

Blanke's BEE BOOK



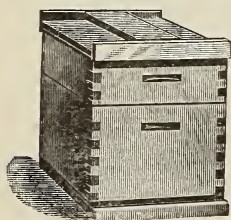
This book describes our line of bee supplies. It contains much information valuable to the beekeeper.

We are centrally located. Shipments out of St. Louis will reach you promptly, and our long experience in this line enables us to fill your orders accurately.

Write for Blanke's Bee Book—it's FREE.

BLANKE MFG. & SUPPLY CO.

214-216-218 Washington Avenue, St. Louis, Missouri



Early-order Discounts will Pay You to Buy Bee Supplies Now

30 years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. . . . Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri

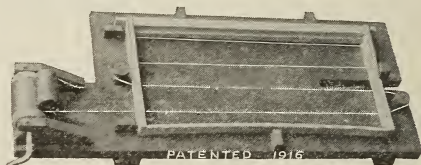
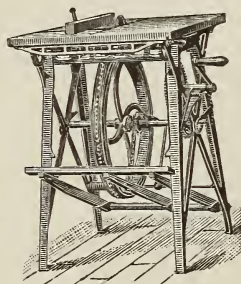
BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices. Address

W. F. & JOHN BARNES CO.
545 Ruby St.
ROCKFORD, ILLINOIS



WRIGHT'S FRAME-WIRING DEVICE

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands. Price, \$2.50, postpaid in U. S. A.

G. W. Wright Company - Azusa, California

GRAY CAUCASIANS



Early breeders; great honey-gatherers; cap beautifully white, great comb builders; very prolific; gentle; hardy; good winterers. Untested, \$1.00. Select untested, \$1.25. Tested, \$1.50. Select tested, \$2.00. The best all-purpose bee. Bees by the frame and pound.

H. W. FULMER, Box G, Andalusia, Pa.

Rhode Island BEEKEEPERS

Beekeepers' Supplies Everything for the Beekeeper

J. A. Sampson, 10 Summer St., Providence, R. I.
(Side of Technical High School)

SWARMING CONTROLLED

If interested, address Charles Thompson,
Marion, Iowa, for information.



Established 1885

It will pay you to get our 50-page catalog and order early.

Beekeepers' Supplies

The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

"Griggs Saves You Freight"

TOLEDO

is the place to order your 1917 supplies from, and GRIGGS is waiting for your order.

We are well supplied with a fine stock of Root's Goods for the following season; and if a saving of time and money means anything to you, Mr. Beeman, wherever you are, don't overlook getting our catalog and prices.

Promptness and satisfaction is our motto, whether you have one hive or 500.

HONEY and Beeswax always wanted. Special price list on bees and queens, also Poultry Feeds, mailed with Catalogs.

S. J. GRIGGS & CO.

Dept. 25

Toledo, Ohio

"Griggs Saves You Freight"

QUEENS

For Sale

Red-clover 3-band Italian queens; Root's, Moore's, Davis', extra-select stock, mated with Geo. B. Hows' famous select drones. I know none better for honey-gathering, wintering, beauty, etc. I guarantee 90 per cent pure mated if queens are returned to me. Queens or money back in a reasonable time. No foul brood, no bee disease; apiaries inspected by Mr. Rea and Prof. Franklin Sherman, Jr. Mr. Rea is our bee inspector of this state.

	Price before July			After July 1st		
	1	6	12	1	6	12
Untested queen	.75	4.00	8.00	.70	3.25	6.50
Select untested	1.00	4.50	8.50	.80	3.75	7.00
Tested	1.25	6.00	10.00	1.25	5.00	9.00
Select tested	1.50	8.00	13.00	1.50	6.00	10.00
Extra select tested	2.00	10.00	15.00	2.00	8.00	13.00
1/2 lb. bees with qn	2.00	10.00	16.00	1.75	8.00	14.00
1 lb. bees with qn	2.50	12.00	20.00	2.00	10.00	17.00

I can furnish bees in lots of 25, 50, and 100 pounds. I am in position to give prompt service this season. My bees are of a famous foul-brood-resisting strain.

H. B. Murray . . Liberty, N. C.

WHERE Can You Find Better

Bees than those of Dr. Miller's strain? Look at these prices and send us your orders. Safe arrival and satisfaction guaranteed.

1/2-lb. package \$1.50.
One to five 1-lb. packages, \$2.00; 6 to 9, \$1.70; 10 to 100, \$1.60.
One to five 2-lb. packages, \$3.00; 6 to 9, \$2.70; 10 to 100, \$2.60.
One to ten 1-fr. nuclei, \$2 each; 10 or more, \$1.85.
One to ten 2-fr. nuclei, \$3 each; 10 or more, \$2.60.
One to ten 3-fr. nuclei, \$4 each; 10 or more, \$3.60.
Full colony, 8 frame, \$6.50; 10-frame, \$7.50.

All prices include an untested queen. Ten per cent of the amount of order should be sent when asking us to book your order.

QUEENS from Dr. Miller's best breeders, \$1.00; \$11.00 per dozen. Tested, \$2.00; select tested, \$3.50; tested breeders, \$5.00 to \$10.00. Shipments from Starkville, Miss.

Stover Apiaries, Starkville, Mississippi

Italian Queens and Bees

I am better able to supply the trade with my three-band Italian queens, colonies, and nuclei than ever before. Send for circular and prices.

E. A. Leffingwell, - - Allen, Mich.

Reasonable Prices Good Service

Place your order now—don't wait. Root's "Quality" Goods. I guarantee satisfaction. . . .

A. M. Moore
Zanesville, Ohio

Rider Agents Wanted

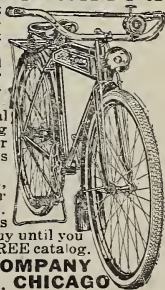
Everywhere to ride and exhibit the new **Ranger Motorbike** completely equipped with electric light and horn, carrier, stand, tool tank, coaster-brake, mud guards and anti-skid tires. **Choice of 44 other styles, colors and sizes in the famous "Ranger" line of bicycles.**

DELIVERED FREE on approval and **30 DAYS TRIAL**. Send for big free catalog and particulars of our **Factory-direct-to-Rider** marvelous offers and terms.

TIRES Lamps, Horns, Wheels, Sundries, and parts for all bicycles—at half usual prices.

SEND NO MONEY but tell us exactly what you need. Do not buy until you get our prices, terms and the big **FREE** catalog.

MEAD CYCLE COMPANY
Dept. B153, CHICAGO



TALKING QUEENS

Laws Queens Speak for Themselves

Please remember Laws' queens have stood the test of continuous advertising in this journal for this the 28th season. Thousands of customers have testified to the merits of Laws' bees and queens, and if there is a displeased customer I do not know it. Untested will be ready in April; after which see the following table.

	April to June			June to November		
	1	12	100	1	12	100
Untested	\$1.00	\$ 9.00	\$ 75.00	\$.75	\$ 8.00	\$ 65.00
Tested	1.25	10.00	85.00	1.00	10.00	75.00
Select Tested	2.00	18.00	120.00	1.50	15.00	100.00
Breeding queens: Guaranteed none better, at all times: each \$5.00						

Combless Bees AFTER MAY 1st.

1 lb. package, \$1.50; 5 to 10 packages each, \$1.25; 10 to 50 packages, \$1.15
 2 lb. package, 2.50; 5 to 10 packages each, 2.25; 10 to 50 packages, 2.15
 3 lb. package, 3.50; 5 to 10 packages each, 3.25; 10 to 50 packages, 3.15

Price of queens to be added to above packages.

When 10 or more packages are bought, empty carriers to be returned at my expense.

My queens are all reared in full colonies, plenty of young bees and abundance of fresh honey in the hives. No other plan is so conducive to full-developed and long-lived queens.

My facilities are such that I can mail from 5000 to 6000 queens each season. Circular on application.

Purity of stock and safe delivery guaranteed to your express or post office on all bees and queens from my yards.

Address

W. H. Laws, Beeville, Bee Co., Texas

BEESWAX WANTED

You will save money and freight on your 1917 foundation by shipping us your beeswax and paying only for its manufacture into "SUPERIOR FOUNDATION" (Weed process).

SUPERIOR HONEY CO., Ogden, Utah

PENNSYLVANIA BEEKEEPERS

Our catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
 J. B. MASON, Manager

Money In Your Ideas

C & C PATENTS PROTECT THEM FOR YOU

Books "What to Invent" and "How to Obtain a Patent" sent free. Send rough sketch for free report regarding patentability. A C & C patent on your idea today may mean independence tomorrow. Manufacturers constantly writing us to buy patents. Patents advertised for sale at our expense.

CHANDLER & CHANDLER, Patent Attorneys
 Est. 21 Years. 1124 F Street, Washington, D.C.

Bees, Fruit, and Poultry

An ideal combination for the small-place owner. Gleanings in Bee Culture, Green's Fruit Grower, and American Poultry Advocate are the highest authority on these three subjects. Then why not take advantage of our low-price clubbing offer of all three journals for one year for only \$1.00? . . . Write today.

Gleanings in Bee Culture Medina, Ohio

HONEY LABELS New designs. Lowest prices. Catalog free.
 Liberty Pub. Co., Sta. D, Box 4-A, Cleveland, Ohio.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cts. per line. Advertisements intended for the department cannot be less than two lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

Clover and amber honey in new 60-lb. cans.
Van Wyngarden Bros., Hebron, Indiana.

FOR SALE.—To the highest bidder, a limited quantity of Michigan's best white extracted honey, in 60-pound tins.

A. G. Woodman Co., Grand Rapids, Mich.

HONEY AND WAX WANTED

WANTED.—Extracted honey at jobbing prices. National Honey-Producers' Asso., Kansas City, Mo.

WANTED.—Extracted clover honey; send lowest price.
D. H. Welch, Racine, Wis.

BEESWAX WANTED.—For manufacture into Weed Process Foundation on shares.
Superior Honey Co., Ogden, Utah.

WANTED TO BUY a quantity of dark and amber honey for baking purposes.
A. G. Woodman Co., Grand Rapids, Mich.

HONEY WANTED. — Extracted, white, light amber, and amber of good quality. Can use several cars. Send samples and prices.

Wesley Foster, Boulder, Colo.

WANTED.—White-clover and light-amber extracted honey. Will buy in lots of 1000 lbs. to a carload. Send sample and lowest price.

M. E. Eggers, Eau Claire, Wis.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up, and quote lowest cash price delivered in Preston.

M. V. Facey, Preston, Minn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality.

Dadant & Sons, Hamilton, Illinois.

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free.
Eastern Label Co., Clintonville, Ct.

SEND TODAY for sample of latest Honey Labels. Liberty Pub. Co., Sta. D, box 4-E, Cleveland, Ohio.

FOR SALE.—A full line of Root's goods at Rico's prices.
A. L. Healy, Mayaguez, Porto Rico.

FOR SALE.—Circular-saw mandrels, and emery-wheel stands.
Charles A. Henry, Eden, N. Y.

FOR SALE.—300 T tin supers in good condition.
J. A. Everett, Edgewater, Colo.

Full line of beekeepers' supplies. Send for catalog.
H. Greulich, Scotia, N. Y.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap.
White Mfg. Co., Paris, Tex.

Bargain in 8-frame comb-supers, hives and B-17 Cowan extractor.
E. Bradley, Trenton, Ky.

We carry a complete line of bee-supplies. Ask for our bee-supply catalog. Let us quote you on your requirements.
Deroy Taylor Co., Newark, N.Y.

Northwestern beekeepers can now get Root's supplies at catalog prices near home and save time and freight; also Italian bees and queens.
Geo. F. Webster, Valley View Farm Apiary, Sioux Falls, S. Dak.

THE ROOT CANADIAN HOUSE.—73 Jarvis St., Toronto, Ont. (note new address). Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—A nice lot of 8-frame used hives, up-to-date fixtures for comb honey, 4000 new sections; heavy and light fdn., etc. I am out of the bee business, and will sell very cheap.

J. N. McColm, 1154 N. Cedar St., Galesburg, Ill.

FOR SALE.—Fifty new ten-frame hives with metal covers complete, with frames nailed and wired at \$1.75 each, in lots of 25 or more at \$1.50 each; also 50 ten-frame supers nailed and wired, hives and supers painted two coats, at 60 cts., each, for the supers; in lots of 25 or more 50 cts. each.
M. C. Silsbee Co., Cohocton, Rt. 3, Haskinville, N. Y.

WANTS AND EXCHANGES

WANTED.—50 ten-frame queen excluders in good condition.
J. C. Hicks, Belleville, N. Y.

WANTED.—25 colonies of bees, more or less.
64989 George, 53 Forest St., Montclair, N. J.

WANTED.—Second-hand Novice Ext., cheap, cash.
W. D. Loveland, Bangor, Mich.

WANTED.—Second-hand 4-frame L. size extractor.
Herm Kull, Trenton, Mo.

Wax and old combs wanted for cash or to make up on shares, beekeeper to factory direct.
J. J. Angus, Grand Haven, Mich.

WANTED.—Six-frame power extractor, small circular-saw combination for power; four-horse gasoline-engine.
Dixon, Shellmouth, Manitoba, Can.
F-4172

WANTED.—Bees, 25 colonies or less. Give description and prices.
O. A. Dugstad, Spring Valley, Minn.

WANTED.—Bees in lots of 25 to 250 colonies within 300 miles of Detroit. Correspondence, with full particulars solicited.
A. W. Smith, Birmingham, Mich.

WANTED.—Bees in modern hives, in New Jersey on line of Penn. R. R. or C. R. R. of N. J. State price, kind of hives.
T. Edward Diener, 28 Jacques St., Elizabeth, N. J.

WANTED.—Shipments of old comb and cappings, for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered.
The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1917 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
Dadant & Sons, Hamilton, Illinois.

GOATS

MILCH GOATS.—"Profit and Pleasure in Goat-Keeping," pronounced by experts the best goat book, regardless of price; profusely illustrated; by mail, 35 cents.
Fred C. Lounsbury, Plainfield, N. J.

REAL ESTATE

FOR SALE.—Bees, residence, and land. Good offer. Inquire Rt. 1, Box 1, B, Aitkin, Minn. 41402

VIRGINIA AND NORTH CAROLINA FARMS. \$15 PER ACRE and up. Easy payments. Fruit, dairy, stock, climate, schools, churches, road markets and neighbors of the best. Get our Farm Lists, Magazine, and other interesting literature, all free. Address F. H. Baume, Agr. Agt. N. & W. Ry., 246 N. & W. Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free. C. L. Seagraves, Industrial Commissioner A. T. & S. F. Ry., 1934 R'y Exchange, Chicago.

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ATTENTION—PATENTS. You will like my easy plan. Write for free booklet
C. L. Drew, 3 Victor Bldg., Washington, D. C.

PATENTS SECURED or all Fees Returned. Will give \$500.00 in Awards. Patents Sold Free! Our "Patent Sales Department" bulletin, and books, Free! Send data for actual free search.
E. E. Vrooman & Co., 834 F St., Washington, D. C.

POULTRY

Cockerel mated barred Plymouth Rocks "Ringlet" direct. 15 eggs, \$3. O. F. Ney, Waukon, Iowa.

S. C. Brown Leghorns; stock, eggs, baby chicks. Circular. H. M. Moyer, Boyertown, Pa.

FOR SALE.—Rose Comb Brown Leghorn eggs for setting from good winter and summer layers, and blue-ribbon stock; also penciled Indian Runner duck eggs. Eggs, \$1.25 per 15; \$3.50 per 50; \$6.00 per 100. Joseph A. Reinecke, Rt. 5, Seneca, Kansas.

Beekeepers should be keepers of chickens also. Try winter-laying, prize-winning, 200-egg strain of White Wyandottes. Eggs, chix, and reeding stock for sale. Tell me how many you want, and when, then I will quote prices to please you.

Dr. Elton Blanchard, Youngstown, Ohio.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, 1159 DeWolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Cortlandt St., New York.

When it's **GOLDENS** it's **PHELPS**. Try one and be convinced.

Full colonies fine Italian bees at bargain prices. Write J. York Trigg, 811 Elm St., Dallas, Tex.

Try **ALEXANDER'S** Italian queens for results. Untested, each, 75 cts.; 6 for \$4.25; \$8 per dozen. C. F. Alexander, Campbell, Cal.

"She-suits-me," bright Italian queens, \$1 after May 15. Orders booked now.
Allen Latham, Norwichtown, Conn.

Leffingwell's three-band Italians for the season of 1917. Send for circular and prices.
E. A. Leffingwell, Allen, Mich.

Vigorous, prolific Italian queens, \$1; 6, \$5, June 1. My circular gives best methods of introducing.
A. V. Small, 2302 Agency Road, St. Joseph, Mo.

Phelps' queens will please you. Try them and you will be convinced.

Italian bees and queens. Send for circular.
Ira C. Smith, Dundee, Oregon.

Italian Bees and Queens, Root's goods, and Cary hives. Catalog mailed on request.
F. Coombs & Sons, Brattleboro, Vt.

Italian bees, 2 lbs. with young queen, \$3.00. Satisfaction guaranteed.
Joe C. Weaver, Cochrane, Ala.

150 colonies of bees, good condition, fine sweet-clover location. Equipment for 350 more.
C. F. Randolph, Idaho Falls, Idaho.

FOR SALE at a bargain.—7 colonies of bees, 2-story Dovetailed hives; 10 Hoffman frames to story. For particulars write S. H. Terral, Kentwood, La.

Tested leather-colored queens, \$2.00; after June 1, \$1.50; untested, \$1.00; \$10.00 per dozen, return mail. A. W. Yates, 3 Chapman St., Hartford, Conn.

FOR SALE.—Bees in 9-frame hives, \$6.00; in 10-frame hives, \$7.00; Hoffman frames, wired, full sheets of foundation. Julius Gentz, Wabeno, Wis.

FOR SALE.—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, \$1.00; tested, \$2.00.
Wallace R. Beaver, Lincoln, Ill.

FOR SALE.—100 colonies in 10-frame hives, Golden Italian bees, mostly J. L. Strong's strain of queens. I am on a city lot—too many bees; must sell some of them. Geo. Landers, Clarinda, Ia.

FOR SALE.—Bright Italian queens at 75 cts. each; \$7.50 per doz. Ready April 15. Safe arrival and satisfaction guaranteed.
T. J. Talley, Rt. 3, Greenville, Ala.

FOR SALE.—40 colonies of bees in 8-frame hives, wired frames; straight combs, no disease; \$140 on stands; must sell in bulk.
Clyde Stewart, Brookville, Pa.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. Wm. S. Barnett, Barnetts, Va.

FOR SALE.—25 colonies of Italian bees, frames wired, combs built on full sheets of foundation; 8-fr. colonies, \$6; 10-fr., \$7 with queen.
Henry Shaffer, 2860 Harrison Ave., Cincinnati, O.

Southwest Virginia five-band Italian queens, the fancy comb-honey strain, gentle to handle. They will please you. Try one. \$1.00 each.
Henry S. Bohon, Rt. 3, box 212, Roanoke, Va.

FOR SALE.—Ten colonies Italian bees in Buckeye double-walled hives, all in first-class condition. New queens introduced last fall; \$10.00 per colony. Keewaydin Farms, Gates Mill, Ohio.

My 3-banded Italian queens will be ready to ship April 1. Write for prices of bees and queens by the pound. Safe arrival and satisfaction guaranteed.
J. A. Jones, Greenville, Ala.

FOR SALE.—Italian queens and bees in comb-less packages; safe delivery and satisfaction guaranteed in all respects. Write for prices.
Oscar Mayeux, Hamburg, La.

QUEENS ON APPROVAL.—A select tested queen sent on approval. Send address for description, etc. Bees and supplies for sale.
A. M. Applegate, Reynoldsville, Pa.

BUSINESS-FIRST QUEENS.—Three-banded Italians—untested, \$1.00 each; 6 for \$5.00. Send for price list and \$10 free offer. No disease.
M. F. Perry, Bradentown, Fla.

Select golden and three-banded Italian queens, bred for honey-gatherers; gentle and prolific; 70 cts. each; 6, \$3.75; 12, \$7.25. Booking orders now.
G. H. Merrill, Pickens, S. C.

FOR SALE.—25 colonies Italian bees in 10-fr. hives, wired frames; combs built on full sheets of foundation; no disease; \$4.50 per colony; purchaser to move them. J. B. Ratcliffe, Amboy, Minn.

Swarms in packages, also Italian queens, can be had—the kind that will increase your smiles and your bank account from W. D. Achord, of Fitzpatrick, Ala. See his large ad't elsewhere in this magazine. Circular to you for the asking.

FOR SALE.—Italian bees and queens. One-pound, two-pound, and three-pound packages, with queens; also on frames and full colonies. Ask for our price list, free beginner's book, and bee-supply catalog. Deroy Taylor Co., Newark, N. Y.

My bright Italian queens will be ready to ship April 1 at 75 cts. each; virgin queens, 30 cts. each. Send for price list of queens, bees by the pound; safe arrival and satisfaction guaranteed.

W. W. Talley, Rt. 4, Greenville, Ala.

Two-frame nuclei, 3-band Italian bees, \$2.25; 1 lb. bees with queen, \$1.65. Hoffman brood-frames, wired, and foundation, at catalog prices less carriage, if ordered for parcel post. J. B. Marshall & Son, Rosedale Apiaries, Big Bend, La.

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. each. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. Brockwell, Barnetts, Va.

FOR SALE.—29 stands Italian bees—strong healthy colonies; eight and ten frame dovetailed hives; also extra hives, supers, feeders, and a complete list of implements. These go at a bargain. J. F. Drebert, Boomer, W. Va.

Golden Italian queens about May 1, that produce golden bees; good honey-gatherers. No foul brood. Select tested, \$1.25; tested, \$1.00; untested, 75 cts.; 6, \$1.25; 12, \$8.00. No nuclei or bees for sale.

D. T. Gaster, Rt. 2 Randleman, N. C.

TO INQUIRERS.—I sell no queens directly, but have an arrangement with The Stover Apiaries, Starkville, Miss., which I keep supplied with best breeders, and they can supply you with my stock. C. C. Miller, Marengo, Ill.

QUEENS.—Best Italians, 50 cts. each; \$5.50 per dozen. Virgins, 25 cts. each; \$2.75 per doz. Orders taken now, queens sent out in May. Any of my queens proving mismatched, replaced free.

A. F. Bray, Rt. 2, Kelso, Tenn.

FOR SALE.—Mott's northern-bred Italian queens are hardy, prolific, gentle, and hustlers, therefore resist disease well. Bees by pound. Plans, "How to Introduce Queens and Increase," 25 cts. List free. E. E. Mott, Glenwood, Mich.

Head your colonies with some of our vigorous young three-band Italian queens. Untested, June 1, \$1.00; \$9.00 per doz.; nuclei and full colonies. Satisfaction guaranteed.

A. E. Crandall & Son, Berlin, Conn.

FOR SALE.—Three-banded Italian bees and queens. One untested queen, \$1.00; tested, \$1.50; 3-frame nucleus with untested queen, \$4.00. My queens are reared from the best breeders and by the best known methods. No diseases. Satisfaction guaranteed. Ask for prices on larger quantities.

J. L. Leath, Corinth, Miss.

QUEENS. Doolittle and Moore strain, also Golden. 1 select unt., \$1.00; 6, \$4.25; 12, \$8.00; tested, \$1.25. Best breeder, \$5.00.

Bees by the pound a specialty. One 1-lb. package \$1.25; one 2-lb., \$2.25; large lots less; also nuclei and colonies. Ready March 15. Booking orders now. Circular free.

J. E. Wing, 155 Schiele Ave., San Jose, Cal.

Golden Italian queens from June to November, untested, 75 cts.; 6, \$4.25; doz., \$8.00; tested, \$1.25; 6, \$7.00; select tested, \$1.50; breeders, \$5.00. Bees by pound or nucleus. Pure mating guaranteed. Send for circular. J. I. Danielson, Fairfield, Ia.

FOR SALE.—1000 lbs. bees in 2-lb. packages; 1 to 49, 2 lbs. bees in package, \$2.25 each; 50 to 500, 2 lbs. bees in package, \$2.12½ each. Untested Italian queens, 75 cts. extra. Safe arrival guaranteed. H. E. Graham, Gause, Texas.

FOR SALE.—100 first-class colonies of bees in 8 and 10 frame hives. Price \$475. I will also sell single colonies in 8-fr. hives at \$6.00 or 10-fr. at \$7.00 with queens; 2-fr. nucleus, \$2.50 with queen. C. A. Gaines, Versailles, Ky.

BREEDING QUEENS.—We shall have a nice lot of Italian queens for sale this spring. They have wintered fine. Prices, \$2.50, \$5, and \$10. Untested queens about June 15. Doolittle & Clark, Marietta, N. Y.

Golden Italian queens, bred strictly for business, that produce a strong race of honey-gatherers; untested queens 75 cts. each; \$8.00 per dozen; \$60.00 per 100; tested, \$1.50 each. Prompt service and satisfaction guaranteed.

L. J. Dunn, 59 Broadway Ave., San Jose, Cal.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; doz., \$9.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. Phelps & Son, Wilcox St., Binghamton, N. Y.

GOLDENS THAT ARE TRUE TO NAME.—Write for testimonials. One race only. Unt., each, 75c; 6, \$4.25; 12, \$3.25; 50, \$32.50; 100, \$60.00. Tested, \$1.50; select tested, \$2.00. Breeders, \$5.00 and \$10.00.

Garden City Apiaries, San Jose, Cal.

My choice northern-bred Italian queens are hardy, vigorous, and prolific. May and June, untested, \$1.50; select unt., \$2.00; tested, \$3.00; after July 1, unt., \$1.00; select unt., \$1.25; tested, \$2.00; select tested, \$2.50. Free circular.

F. L. Barber, Lowville, N. Y.

FOR SALE.—190 colonies of bees in A No. 1 hives and condition; 100 extracting-supers with 800 drawn combs that are perfect; 130 comb-honey supers; all tools and equipment necessary for running the same; \$960 takes the outfit if taken at once. Address J. E. Hanks, Hagerman, Idaho.

Golden Italian queens of the quality you need, bred strictly to produce Golden bees that are real workers. Untested; one, 75 cts.; 6, \$4.25; 12, \$8.25; 50 or more, 60 cts. each. Prompt delivery and satisfaction guaranteed.

L. J. Pfeiffer, Rt. A, Box 219, Los Gatos, Cal.

FOR SALE.—130 colonies Italian bees, new swarms, new ten-frame metal-top dovetailed hives painted; straight combs, wired frames, no disease; \$10 each. Safe arrival guaranteed. Delivery about May 10. Write for particulars. Express prepaid in lots of 5 or more. S. H. Burton, Washington, Ind.

Good Italian queens. Tested, \$1.00; untested, 75 cts. Bees in 1-lb. packages, with untested queen, \$2.25; 2-lb. package, \$3.25; 1-lb. package, with tested queen, \$2.50; 2-lb. package, with tested queen, \$3.50. Nuclei, 2 frames, with untested queen, \$3.25; 3 frames, \$4.00. Nuclei with tested queen, 2 frames, \$3.50; 3 frames, \$4.25. We can please you.

G. W. Moon, 1904 Park Ave., Little Rock, Ark.

Three-banded queens only, ready after May 1. Dr. C. C. Miller queens, \$1.00 each; 12 for \$10.00; breeders, \$10.00 each; my own strain, \$1.00 each; 12 for \$9.00; breeders, \$5.00 to \$10.00 each; nuclei and full colonies ready June 1; 2-fr., \$2.50; 8-fr., with queen, \$8.00; 10-fr., with queen, \$10.00; 1-lb. package of bees, no queen, \$1.50; 2-lb., no queen, \$2.75; 3-lb., no queen, \$3.75. Pounds of bees and queens ready April 1.

Curd Walker, Queen-breeder, Jellico, Tenn.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

John M. Davis, Spring Hill, Tenn.

BEES FOR SALE.—On account of the poor health of one of my sons, we shall have more bees the coming season than we can handle. The bees are all pure Italian, with good young queens—descendants of the famous Moore strain. They are in nearly new Langstroth hives, on good wired combs, built on foundation; are free from disease. I will sell about 100 colonies, price in 10-frame hives, \$7.00 a colony; in 8-frame hives, \$6.00. Orders may be sent at any time; the bees will be shipped about June 1. Elmer Hutchinson, Lake City, Mich.

Golden 3-band Italian and Carniolan queens: Virgin: 1, 50c; 6, \$2.50; 12, \$4.00; 100, \$25.00. Untested: 1, 75c; 6, \$4.20; 12, \$7.80; 100, \$60.00. Select untested: 1, 85c; 6, \$4.80; 12, \$9.00; 100, \$70.00. Tested: 1, \$1.00; 6, \$5.40; 12, \$10.20; 100, \$80.00. Select tested: 1, \$1.25; 12, \$13.80; 100, \$100. Breeders: \$3.00 each. Bees in combless packages: ½ lb., 75c; 1 lb., \$1.25; 2 lbs., \$2.25. Nuclei: 1-frame, \$1.25; 2 frames, \$2.25; 3 frames, \$3.00. Add price of queens wanted. We guarantee safe arrival and no disease.

C. B. Bankston, Buffalo, Tex.

FOR SALE.—Three-band Italian bees and queens. We quote without queen, as follows:—Three-frame nuclei, \$2.25; two-frame nuclei, \$1.75; one-frame nuclei, \$1.25; three pounds bees, \$3.25; two pounds bees, \$2.25; one pound bees, \$1.50. If queen is wanted with bees add price of queen wanted. Young untested queens, \$.75; young tested queens, \$1.00. Our bees and queens last year gave general satisfaction, and this year we are in position to give stronger nuclei with a greater per cent brood than we did last year. If it is a bargain you are looking for, send your order this way. Send your orders now and money when you want them shipped. Can begin shipping April 15. Bees are all in standard hives, Hoffman frames, wired, and full sheets foundation. We guarantee bees to be free from disease. The following is an extract from one of our many satisfied customers. "Aug. 16, today, I hived the second large swarm from the colony I started from a three-frame nucleus I bought from you in June and have about 40 lbs. surplus honey on hive. It pays to keep well-bred stock, whether it is cattle or bees." (Name furnished on application.)

The Hyde Bee Co., Floresville, Texas.

MISCELLANEOUS

BASSWOOD TREES.—All sizes. Send me your want list. W. M. Hansen, Jr., Niles, Mich.

Quality Dahlias (northern grown). Send for catalog. Mrs. E. L. G. Davis, Rt. 2, Newton, N. H.

Send 20 cts. in stamps and receive a collection of 15 Atlantic City and seashore colored post cards. 31802 Box 224, May's Landing, N. J.

How to make and operate a little printing-press at small cost. Send red stamp for sample. J. M. Smithson, Mancos, Colo.

St. Regis Everbearing raspberry. Pedigree plants, 1 doz., 35 cts.; 2 doz., 50; 6 doz., \$1.00, prepaid; also strawberry, Progressive, Everbearing; pedigree; raspberry price.

L. H. Cline, Box 334, Marietta, Ohio.

HELP WANTED

Man wanted to work on a small farm and with bees. S. Stewart, Newcastle, Colo.

WANTED.—Experienced beeman for season of 1917. Roscoe F. Wixson, Rt. 20, Dundee, N. Y.

WANTED.—Two men to work with bees the coming season; must have some experience. B. B. Coggsall, Groton, N. Y.

WANTED.—Man to work with bees, season 1917. State age, experience, and wages. The Rocky Mountain Bee Co., Billings, Montana.

WANTED.—Active young man as helper; also one to run outyards. State age, experience, and wages expected. Chas. Adams, Greeley, Colo.

HELP WANTED.—Man of good habits to work with bees. State age, experience, and wages. J. B. Merwin, Prattsville, N. Y.

WANTED.—Position on farm, preferring farm with bees, poultry, or fruit, by young man of good character, some experience. I. H. Lindquist, Garden City, L. I., N. Y.

WANTED.—Reliable man of good habits to work my home apiary and small farm. State age and wages first letter. Mrs. H. C. Ahlers, Rt. 1, Box 11, West Bend, Wis.

WANTED.—To work bees on shares for extracted honey within 150 miles of Chicago; modern methods; 20 years' experience. F., in care of A. I. Root Co., 215 W. Ohio St., Chicago. 17787

WANTED.—An active young man of good habits to help in three beeyards, and on fruit-farm. Auto used. Some work for a woman. State experience, height, weight, age, and wages in first letter. Mrs. S. Wilbur Frey, Rt. 1, Sand Lake, Mich.

EXPERIENCED MANAGING BEEMAN wanted to handle bees on shares in Ozark Mountains, Ark. We furnish bees, also house, garden spot, farm-home privileges, and work on farm when not engaged with bees. Can also raise unlimited quantity of chickens if he desires. Owner away for health. C. W. Riggs, 502 Jackson St., Tampa, Fla.

WANTED.—Young man with a little experience, fast willing worker, as student helper with our 1000 colonies. Crop for past two years, 6 carloads. Will give results of our long experience and small wages; every chance to learn. Give age, height, weight, experience, and wages, all in first letter, or expect no answer. E. F. Atwater, Meridian, Idaho.

WANTED.—Experienced farm hand to assist with farm work and 100 colonies of bees. No experience with bees necessary, but will give every opportunity to learn. Up-to-date methods all around. Only willing hands of clean body and mind need apply. State all particulars first letter. Conrad Kruse, Loganville, Sauk Co., Wis.

Two young men can, during the season of 1917, reap the benefit of my experience for nearly forty years with up to 800 colonies of bees; also as public demonstrator with bees and lecturer and expert in beekeeping at the Ontario Agricultural College. One with clean body and mind required. Board; and, if the season is good, a little more given. R. F. Holtermann, Brantford, Ontario, Canada.

SITUATION WANTED

WANTED.—Position in an apiary with opportunity of buying or partnership. E. Paillard, 165 Third Street, San Francisco, Cal.

WANTED.—Position in apiary in the West by a rural-school teacher, 22 years of age, with three years' experience with bees. \$50 a month with board. References exchanged. Buryl Cummins, Rt. 5, Plymouth, Ind.

Position wanted by young man; experience of 8 years in large outyards—N. M. or Pacific coast preferred. References. State wages; how long you can use me, and number of colonies. 71932 A. M., Box 84, Crystal City, Texas.

Position wanted by young man of 18 with some practical beekeeper in Wisconsin or nearby states. Has no bad habits; a fast and willing worker about bees; has had some practical experience with bees in the production of comb and extracted honey, also in the rearing of queens. State what wages you will pay and what knowledge may be gained. J. O. Eggers, Eau Claire, Wis.

TRADE NOTES

BEESWAX MARKET.

The market price of beeswax continues firm. We have secured during the past month or six-weeks some over thirty tons, and shall need in addition during the next three months as much more. As the spring months open, supplies should be more plentiful, especially so if there should be a considerable loss of bees by winter-killing. If you have any wax to offer, let us hear from you. In shipping beeswax, whether by mail, express, or freight, be sure to put your name and address on or in the package so securely that there can be no trouble in identification on arrival. Also write to us, stating the amount sent, and how. If possible give the gross weight as well as the net. In case it reaches us in bad order it is much easier to put in a claim for loss if we have full information at time of arrival. If you send small lots by parcel post put in a cloth sack; or, if wrapped in paper, use something very strong, and several thicknesses, with strong cord. We are constantly receiving lots broken open and so poorly put up it is hard to identify the lot or determine who the sender is. Be careful, and save trouble for us and you.

ADVANCE IN PRICE OF METAL GOODS.

Because of the continual rise in price of metals, especially everything in steel and iron, we are obliged to announce a further increase in prices of metal goods. Most of these changes will not be made till May 1, so that, if you contemplate ordering, you have a chance to do so before advances go into effect. This applies particularly to honey and wax extractors, tanks, capping-cans, tin cans, pails, and other articles of metal.

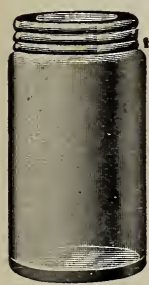
We are obliged to make an advance effective at once on a few goods as follows: Eight and ten frame unbound zinc honey-boards are advanced 4 cts. each, or \$4.00 per 100; retail wholesale and jobbing. Sheet zinc advanced to \$4.00 per sheet.

Alexander honey-strainer is advanced to \$4.50; oil and gasoline stoves, one and two burner, all advanced 50 cts. each. Townsend uncapping-box is marked up to \$20.00.

Comb-foundation mills are again marked up to the following schedule:

69511—14-inch mill,	2 1/2-inch rolls,	\$120.00
69512—12-inch mill,	2 1/2-inch ro/ls,	110.00
69513—10-inch mill,	2 1/2-inch rolls,	100.00
69514— 6-inch mill,	2 1/2-inch rolls,	100.00
69515—10-inch mill,	2 -inch rolls,	90.00
69516— 6-inch mill,	2 -inch rolls,	80.00
Dipping-tank for 12 or 14 inch mills		\$5.00
Dipping-tank for 6 or 10 inch mills		4.00

ONE-POUND ROUND JARS.



Due to conditions brought about by the great war, there is increasing difficulty in securing glass packages of all kinds, and prices are advancing at such a rate that, notwithstanding the fact that we buy more than twenty carloads a year, we are now asked about fifty per cent more than we paid a year and a half ago, and we have to wait for months to get the goods ordered. We have applied to at least a dozen factories, and are unable to find one which will take on new business. In the face of this condition we have secured at Alton, Ill.,

nearly three carloads of jars holding an even pound of honey, as shown above. They have lacquered tin tops with wax-paper wads; are put up in two dozen paper reshipping-cases. For such orders as we can ship at once before May in lots of 30 cases or more we offer them at 85 cts. per case; 100-case lots at 80 cts. After the stock has been shipped to our Des Moines, Chicago, and St. Paul branches the price will be \$1.00 per case; 6 cases or over, 95 cts. The special price named above is only for immediate orders for shipment direct from Alton, Ill., before stock is moved from there. We must order the stock from there by early May, hence it is important

that you order promptly if you would secure any at the special price. For less than 30 cases, not less than 6, the price is 90 cts. a case.

THE 1917 EDITION OF THE A B C AND X Y Z OF BEE CULTURE BEING DELIVERED.

We are happy to announce to our readers that we have finally completed the 1917 edition—the largest work on bees ever published. This edition is over 100 pages larger than the former one; and this increase in size, together with the extra cost of paper, makes it necessary for us to charge \$2.50 instead of \$2.00 as before, or with GLEANINGS one year for \$3.00. If there ever was an edition of the A B C and X Y Z that was new from cover to cover, this is the one. Every article has been gone over carefully. A large number of them have been rewritten entirely; a much larger number have been very extensively revised, and these, together with new subjects that never appeared before, make the A B C and X Y Z of Bee Culture just what its name signifies—a work on bees from beginning to end, and a work for beginners and for veterans.

SWEET-CLOVER SEED.

In closing out our seed department we have a number of odd lots of seed which we offer at bargain prices. We have at Chicago about 128 lbs. hulled white-sweet-clover seed; 465 lbs. unhulled yellow, and 85 lbs. hulled yellow biennial at Des Moines, Iowa; several hundred pounds each of unhulled yellow and white and of hulled white. At Medina we have several hundred pounds of hulled and unhulled yellow biennial and a good lot of hulled annual yellow. We offer the several kinds to close out at the following prices which are away below cost:

Hulled white	.....18c lb.;	\$15.00 per 100 lbs.
Unhulled white	.....10c lb.;	8.00 per 100 lbs.
Hulled yellow	.....15c lb.;	12.00 per 100 lbs.
Unhulled yellow	..... 9c lb.;	7.00 per 100 lbs.
Annual yellow	..... 6c lb.;	3.00 per 100 lbs.

We have also several hundred pounds of alfalfa and white sweet clover, mixed a little more than half alfalfa. We offer this at \$8.00 per 100 lbs., which is about half the price of clean seed of either variety not mixed. Sweet clover is often used to prepare the ground for alfalfa. As the sweet clover is a biennial, while the alfalfa is perennial, there would be no serious disadvantage in sowing the mixed seed. This lot is none too clean. If interested we will mail a sample on application to Medina.

THE A. I. ROOT CO., Medina, O.

CONVENTION NOTICES

NORTH CAROLINA BEEKEEPERS' ASSOCIATION.

The organization meeting of the North Carolina Beekeepers' Association was held at Winston-Salem, January 11. Over 100 state beekeepers attended, these owning upward of 3000 colonies of bees. Dr. E. F. Phillips, of Washington, and Mr. E. R. Root, of Medina, Ohio, were both present and took part. There were also other visitors from Pennsylvania and Ohio. Interest was keen, and the whole meeting went thru with enthusiasm.

All discussion was in favor of a state association. Committees were accordingly appointed, which reported at the evening session, when a constitution was adopted, and officers elected as follows: President, F. Sherman, Raleigh; Vice-president, C. A. Sams, Mars Hill; Secretary-Treasurer, S. S. Stabler, Salisbury; Executive Committee, the three named, and F. L. Johnson, Mount Airy, and W. C. Fleming, Greensboro. Dues were fixed at one dollar per year.

The association already has 48 members without having yet canvassed all the known beekeepers of the state. It is already in position to offer some real advantages to members. All North Carolina readers of this notice are invited to become members by sending one dollar (with name and address plainly written) to Mr. S. S. Stabler, Salisbury, N. C.

Either the president or the secretary will be glad to correspond with interested persons.

WHO'S WHO IN APICULTURE

In this first appearance of "Who's Who in Apiculture," the editors wish to announce that this feature is to be a permanent policy of GLEANINGS. It will not appear in every issue, however, but will occur hereafter four times a year in the January, April, July, and October issues. In looking over the table it is interesting to note that at least twenty states have courses in apiculture. Three of the others probably have such courses, altho we could not be sure at the moment of going to press. Twenty-four states have net-weight laws, twenty-nine have foul-brood laws, and thirty-four have state associations.

No doubt, as time goes on, this table can be improved upon. It would be interesting to have a column, giving the names of those in charge of apicultural courses and no doubt additional columns will suggest themselves. We realize that discrepancies may have been made. It is not an easy matter to compile such a table when changes are being made so frequently, but having once started we shall depend upon our readers, if not on the ones directly concerned, to keep us posted of any changes or corrections. Our aim and desire is to have each quarterly table as up-to-date and as correct as possible, so that any one at any time can turn to the last quarterly number and get correct information regarding the statistics in his own state. We hope that our readers will avail themselves of the information given in this way so that "Who's Who in Apiculture" may become a valuable adjunct to our pages.

State	Beekeeping taught in Agr. College	Net Weight Law?	Foul- brood Law?	State Inspector or Deputy Name Address	Sec. or Pres. State Ass'n Name Address
Alabama.....				J. P. Ivy, Phoenix.....	Geo. M. Frizzell, Tempe
Arizona.....	Yes	Yes	Yes		J. L. Pelham, Hutchinson
Arkansas.....					F. Fay Lewis (No.) Oak Park
California.....	Yes	Yes	Yes	County System.....	M. C. Richter, Santa Barbara
Colorado.....			Yes	Wesley Foster, Boulder.....	S. Francis, Longmont
Connecticut.....		Yes	Yes	H. W. Coley, Westport.....	L. Wayne Adams, Hartford
Delaware.....				A. W. Yates, Hartford.....	
Florida.....		Yes			
Georgia.....		Yes			J. J. Wilder, Cordele
Idaho.....	Yes		Yes	Guy Graham, Boise.....	R. D. Bradshaw, Notus
Illinois.....			Yes	A. L. Kildow, Putnam.....	Jas. A. Stone, Springfield
Indiana.....		Yes*	Yes	Frank Wallace, Indianapolis..	Geo. W. Williams, Redkey
Iowa.....	Yes	Yes*	Yes	Frank C. Pellett, Atlantic....	Hamlin B. Miller, Marshalltown
Kansas.....	Yes		Yes	Geo. A. Dean, Manhattan (No.)	O. A. Keene, Topeka
				S. J. Hunter, Lawrence (So.)	
Kentucky.....			Yes	County System.....	Prof. H. Garmen, Lexington, State Exp. Station
Louisiana.....		Yes			L. F. Rogers, Shreveport
Maine.....		Yes			O. B. Griffin, Caribou
Maryland.....	Yes				E. N. Cary, College Park
Massachusetts.....	Yes	Yes	Yes	Dr. B. N. Gates, Amherst....	Thos. J. Hawkins, (E.) Everett
Michigan.....	Yes	Yes	Yes	F. Eric Millen, East Lansing..	Philip S. Chrichton, Boston
Minnesota.....	Yes		Yes	C. D. Blaker, Minneapolis....	F. Eric Millen, East Lansing
Mississippi.....					L. V. France, St. Paul
Missouri.....	Yes		Yes	M. E. Darby, Springfield.....	Austin D. Wolf, Parkville
Montana.....	Yes	Yes			Percy F. Kolb, Billings
Nebraska.....	Yes	Yes	Yes	County System.....	
Nevada.....		Yes			
New Hampshire.....		Yes			
New Jersey.....	Yes		Yes	E. G. Carr, New Egypt.....	E. G. Carr, New Egypt
New Mexico.....			Yes	County System.....	Henry B. Barron, Hagerman
New York.....	Yes	Yes	Yes	Com. of Agri., Albany.....	F. Greiner, Naples
North Carolina.....					S. S. Stabler, Salisbury
North Dakota.....		Yes			
Ohio.....	Yes		Yes	N. E. Shaw, Columbus.....	Dr. Ernest Kohn, Grover Hill
Oklahoma.....	Yes				F. W. VanDeMark, Stillwater
Oregon.....	Yes				P. S. Farrell, New Plymouth, Ida.
Pennsylvania.....	Yes	Yes	Yes	J. G. Sanders, Harrisburg....	H. C. Klinger, Liverpool
Rhode Island.....			Yes	A. C. Miller, Providence.....	Gardner B. Willis, Providence
South Carolina.....					
South Dakota.....		Yes	Yes?	District System.....	L. A. Syverud, Canton
Tennessee.....	Yes	Yes	Yes	F. B. Paddock, College Sta....	J. M. Buchanan, Franklin
Texas.....	Yes		Yes	J. S. Ward, Nashville.....	Louis Scholl, New Braunfels
Utah.....		Yes	Yes	County System.....	Joah Collier, Vernal
Vermont.....			Yes	J. E. Crane, Middlebury.....	J. E. Crane, Middleburg
Virginia.....					
Washington.....			Yes	County?	J. B. Ramage, No. Yakima
West Virginia.....		Yes			Pan Handle, B. K. A.
Wisconsin.....	Yes	Yes	Yes	N. E. France, Platteville.....	Gus Ditmer, Augusta
Wyoming.....		Yes	Yes	County System.....	
Ontario, Can.....	Yes		Yes	Morley Pettit, Guelph.....	Morley Pettit, Guelph

* Comb honey excepted.